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HOLMENS  
BRUKS OCH FABRIKS  
AKTIEBOLAG

H O L M E N S  
B R U K S   O C H   F A B R I K S  
A K T I E B O L A G  
N O R R K Ö P I N G  
S W E D E N

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ART PAPER FROM AB PAPYRUS, GÖTEBORG

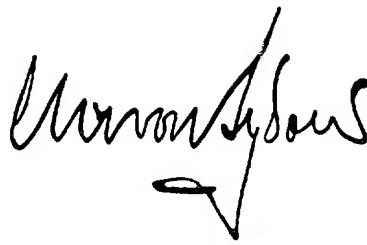
PHOTOGRAVURE PLATES FROM ÅHLÉN & ÅKERLUNDS KEMIGRAFISKA ANSTALT

STOCKHOLM 1946



“H olmens Bruks och Fabriks Aktiebolag” has for many years occupied a leading position among Sweden’s newsprint manufacturers, and our object in producing this book is to give some idea of the circumstances which have given us this position. In words and pictures, glimpses are shown of the work and organization involved in the transformation of the growing tree into paper in the printing press.

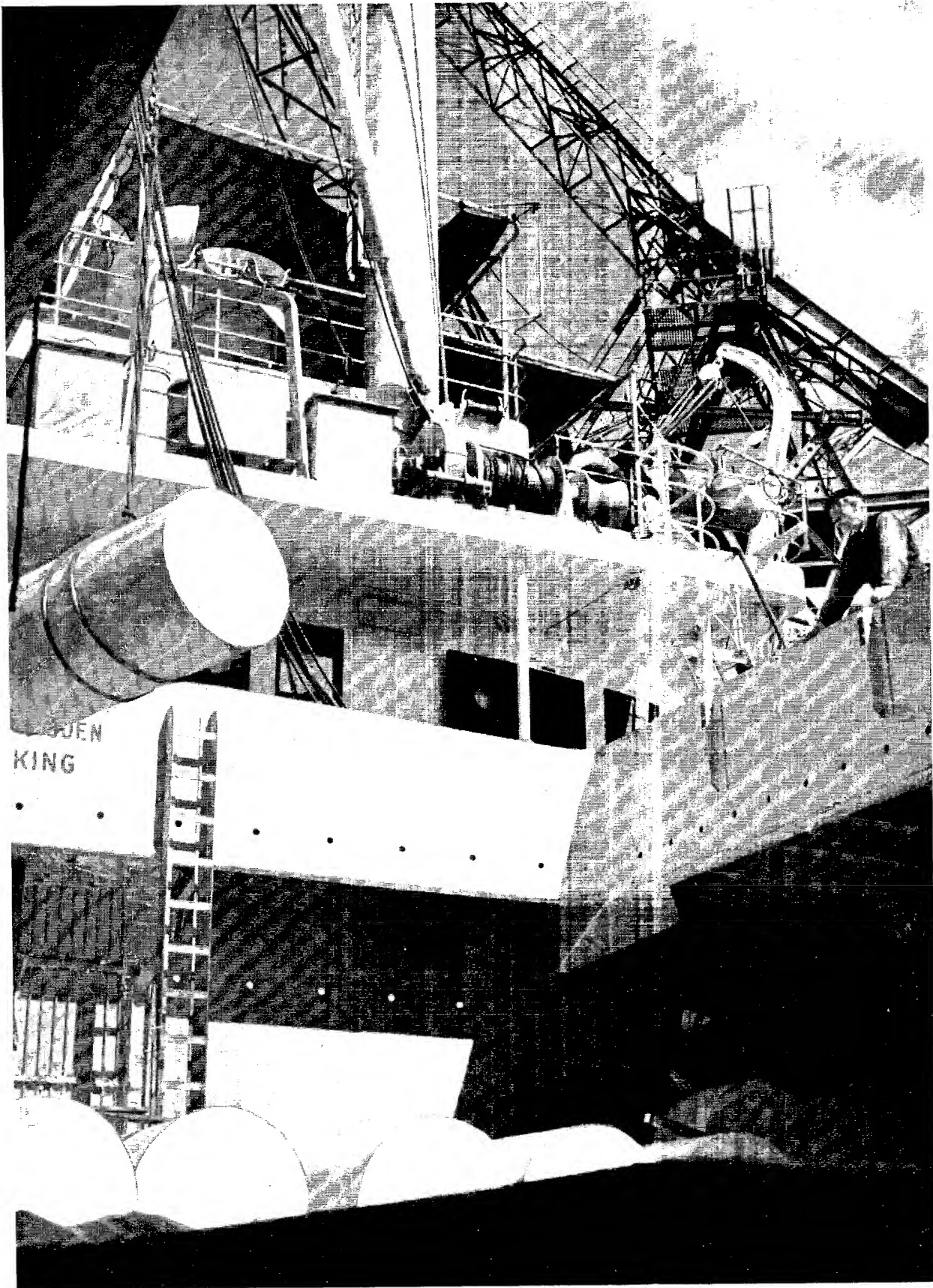
It is obvious that this complicated process requires factories with first-class technical equipment, as well as skilled engineers and workers; and it is my hope that this brief description may give a true picture of our constant endeavour: namely to offer a product which is second to none in quality and a service which meets the highest requirements.

A handwritten signature in black ink, appearing to read 'Herman Bylund'. The signature is fluid and cursive, with a large initial 'H' and a stylized 'B'.

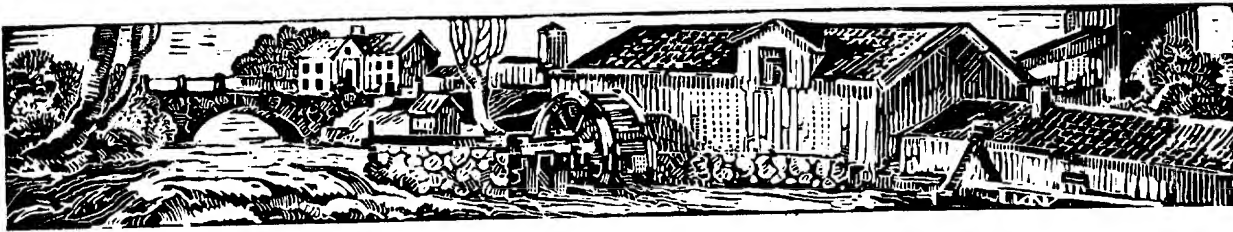
Managing Director



View of the River of Swatara



-- to the newspaper presses of the world.



## THREE CENTURIES OF GROWTH

The activities of Holmens Bruks och Fabriks Aktiebolag in the city of Norrköping commenced as far back as the beginning of the 17th century. At that time, the Swedish Government erected some factories and workshops — very modest, no doubt — on the islands in the river at Norrköping. But the task of raising this modest project to the dignity of an industry required a higher level of com-

mercial and technical ability than Sweden could boast of in those days. It was therefore typical of the times that the man who did this was an immigrant, a Dutchman named Louis de Geer, who in a singularly justified way has been called "The father of Swedish industry".

Through his technically and commercially able countryman, Wellam de Besche, who



Mr. Carl Wahren, chief of the ... during the years 1907 to 1908.

and earlier emigrated to Sweden, de Geer began doing business with Sweden during the second decade of the 17th century, which business soon grew to some volume, and the two Dutchmen acquired certain properties in the country. Prior to his moving to Sweden, de Geer had focused his attention on the town of Norrköping. After some negotiations with the Swedish king certain islands in the Norrköping river were leased to the two Dutchmen, which lease included some mills and fisheries belonging to the Government. This was the origin of the name "Holmen" which is Swedish for island. The name has been retained ever since.

De Geer's mills at Norrköping were situated where Holmen's mills are now, and consisted chiefly of brass foundries and factories for guns and other weapons. As early as the beginning of 1629 these factories produced large quantities of not only weapons but also axes, spades, horseshoes, nails, etc. The business was on a considerable scale even from today's viewpoint. This is evident from the fact that the great army of Gustavus

Adolphus was largely furnished with Swedish weapons produced at these factories. In 1631 de Geer received orders for complete equipment for not less than 32 regiments of infantry and 8000 cavalrymen. By about the time a text mill had been built, and paper manufacturing had also been started by an interesting Dutchman. The combination of paper and textiles in the same concern, which is a distinctive of Sweden, was thus formed. For 16 years took at that time by Louis de Geer. The manufacture of paper consisted, however, of only a trial mill, and was soon abandoned, not to be resumed until about 1700, years later.

The manufacturing business of Holmen had rather a chequered career after the death of de Geer in the middle of the 17th century.



A factory of Louis de Geer in the sculpture of Holmen, the city of Norrköping, Sweden. The factory plan.



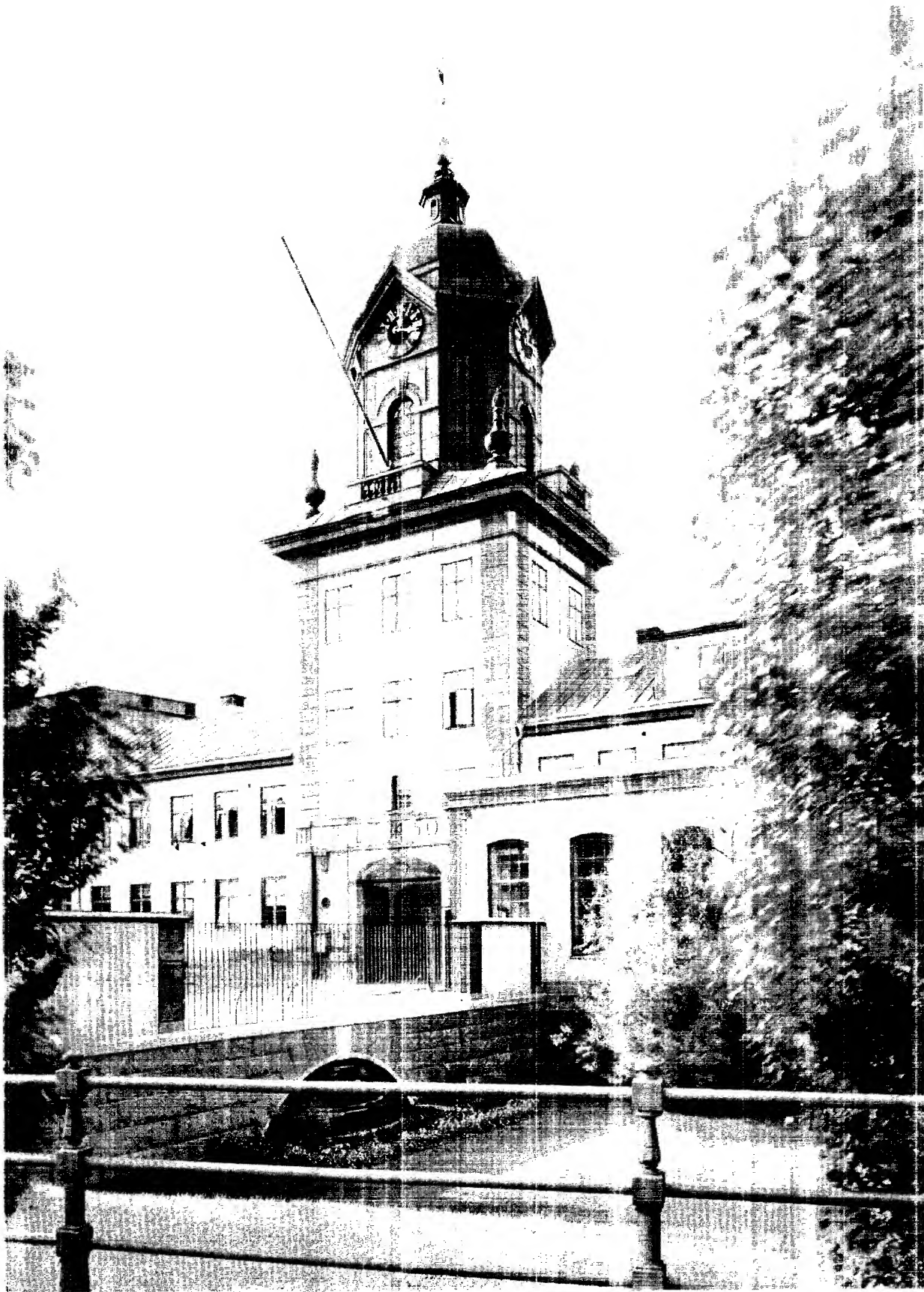
Sometimes the concern met with considerable success, but there were also failures. Bankruptcies and bitter lawsuits were numerous, and fires and floods beset the Company. The plants were not even spared the ravages of war, for they were completely devastated by the Russians who destroyed the whole town of Norrköping in 1719 — a blow from which it took long to recover. After the vicissitudes of the 18th century, the Company was acquired by a very able mayor of Norrköping by the name of Lars Magnus Trozelli. The period following this became more quiet and progressive as far as the development of the Company was concerned. The production of paper was resumed, at first by handicraft, but after 1835

on one of the first paper machines to be installed in Sweden. The textile manufacturing, started in de Geer's time, was carried on into the 19th century.

A new epoch began in 1854, when the present company, Holmens Bruks och Fabriks Aktiebolag, was founded and thus acquired the mills. One of the first acts of the new Company was to expand the textile industry by building a cotton-spinning mill and a cotton weaving mill which were both of considerable capacity for those days. At the same time, the brass mills were definitely abandoned, and in their place an iron mill was started which became an important part of the concern up to 1875. When the iron mill was abandoned, paper manufacturing was increased consid-



Chief of the Concern since 1938, Mr. Christian von Sydow.

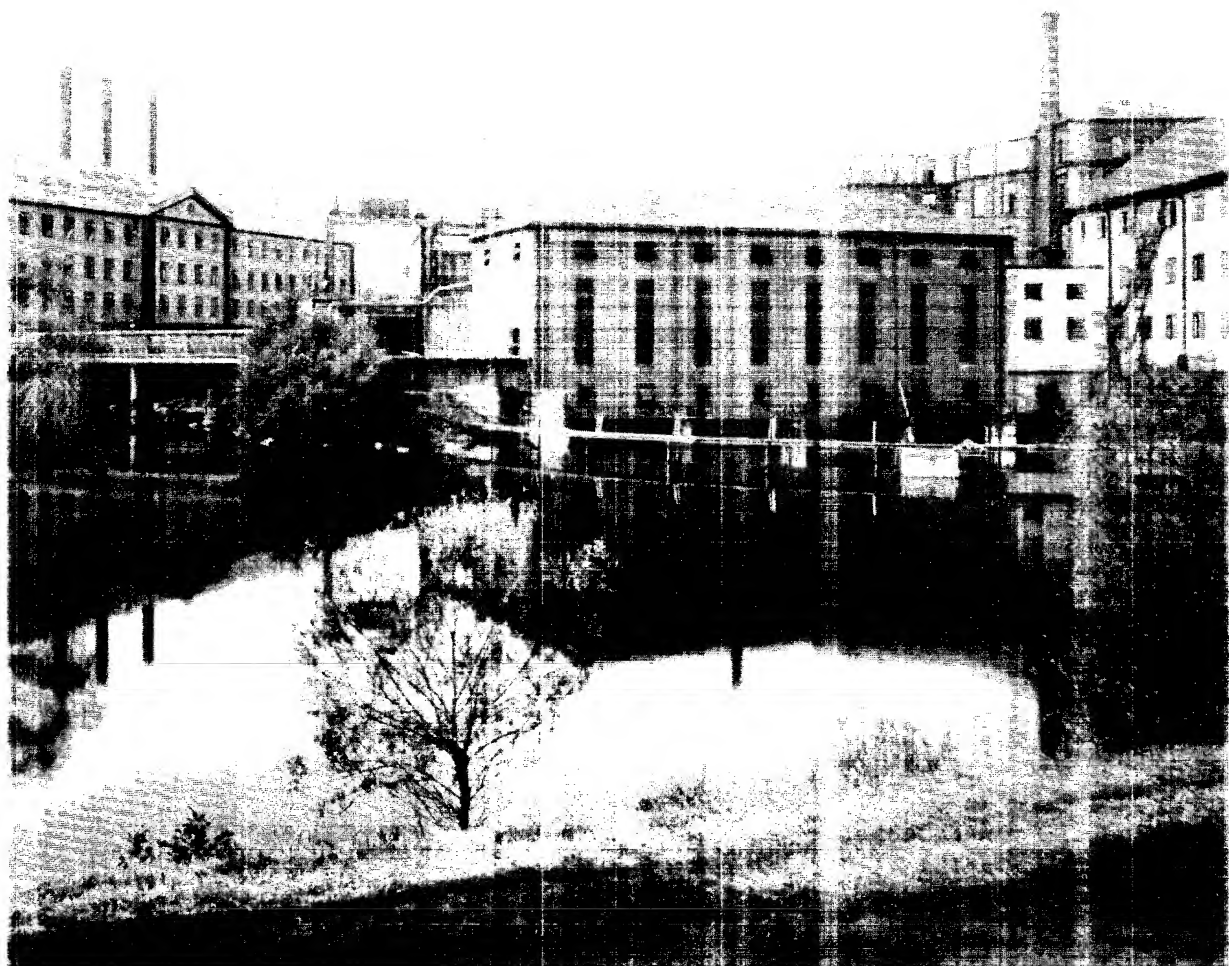


The need in manufacturing processes to handle tools requiring precision and accuracy.



The factory buildings reflected in the river.

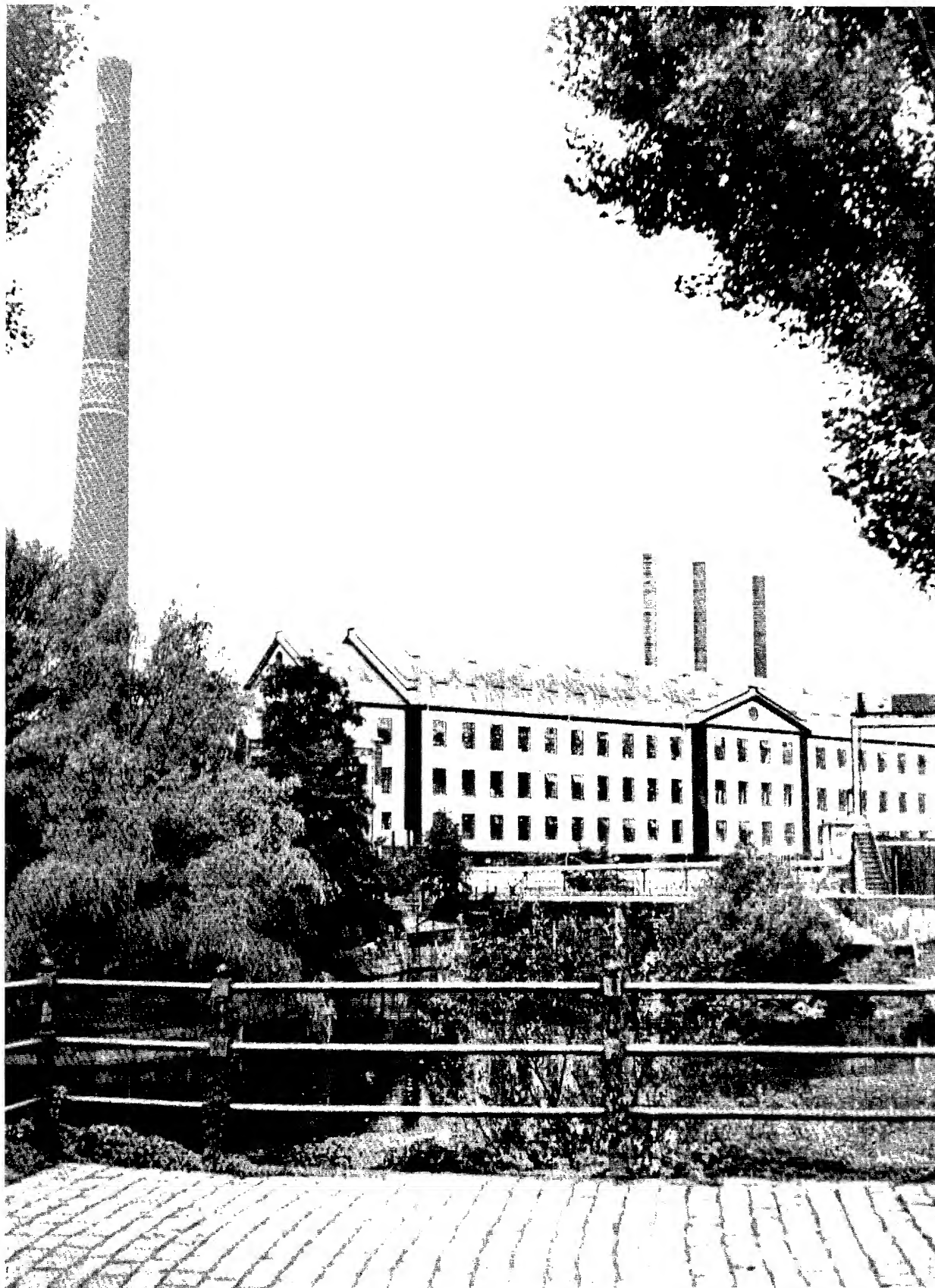




The water power of the mill, which originally gave reason for locating the mill at Norköping, is now utilized for an aluminum school, a power plant.

ably by the installation of new machines. In this way the first step was taken along the road which was to lead to the paper industry becoming of the first importance in the activities of the concern.

Thus it is against a background of three centuries' industrial tradition that our modern paper manufacturing stands out. But the story of the paper itself is written in a later chapter of this book.



The cotton-spinning mills at Norrköping; a good example of industrial architecture of the 1850's.





## WOOD AND WATER

More than half of the area of Sweden — about 89,000 square miles — consists of wooded land. These forests are mostly situated in the north of Sweden, but in the southern part of the country also, the great coniferous woods are an outstanding feature of the landscape. In comparison with other forest areas of the world, it can be stated that for every 'Swede there are about 9.0 acres of wooded land, whilst the figure for the rest of Europe is 1.3 acres, and for the United States 4.0 acres. Normally the cut from these forests has been about 1,400,000,000 cub. feet and the re-growth about 1,750,000,000 cub.

feet annually. The surplus is unfortunately largely timber which, because of its location, has been difficult or impossible to utilize. The first Government regulations for reforestation in Sweden were promulgated in 1647. With the present-day efficient Government control, the Swedish forests should be an inexhaustible source of raw material. Sweden should therefore have the best chances of retaining its front-rank position among the wood-exporting countries of the world. This position promises great things for the future in these times, when chemists all over the world are penetrating the innermost secrets





At the present time, the northern part of Sweden has about 100,000 square miles of forest, of which about 50,000 square miles are in the hands of the government. The rest is in the hands of private owners.

of wood, and then the most astonishing revelations are in regard to the properties of wood as a raw material in many different industries.

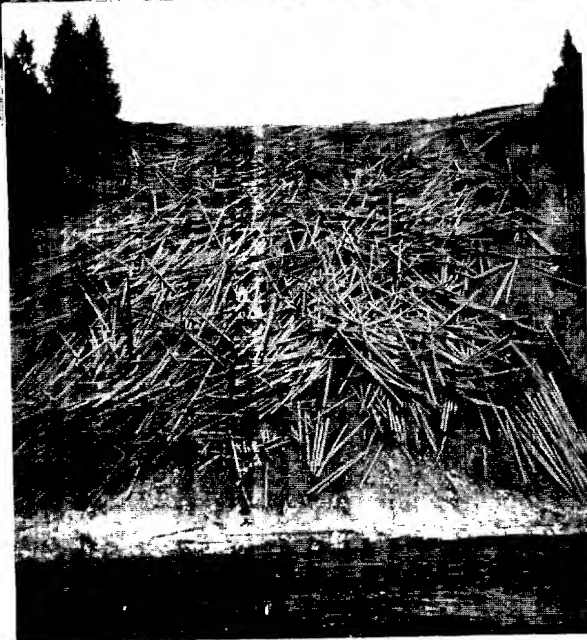
Holmen's paper mills meet their requirements partly from the areas surrounding the mills. The forests are perhaps not as large as those in the north of Sweden, but their production per acre is considerably greater. When the paper manufacturing company began to expand into a great industry about 30 years ago, the location of

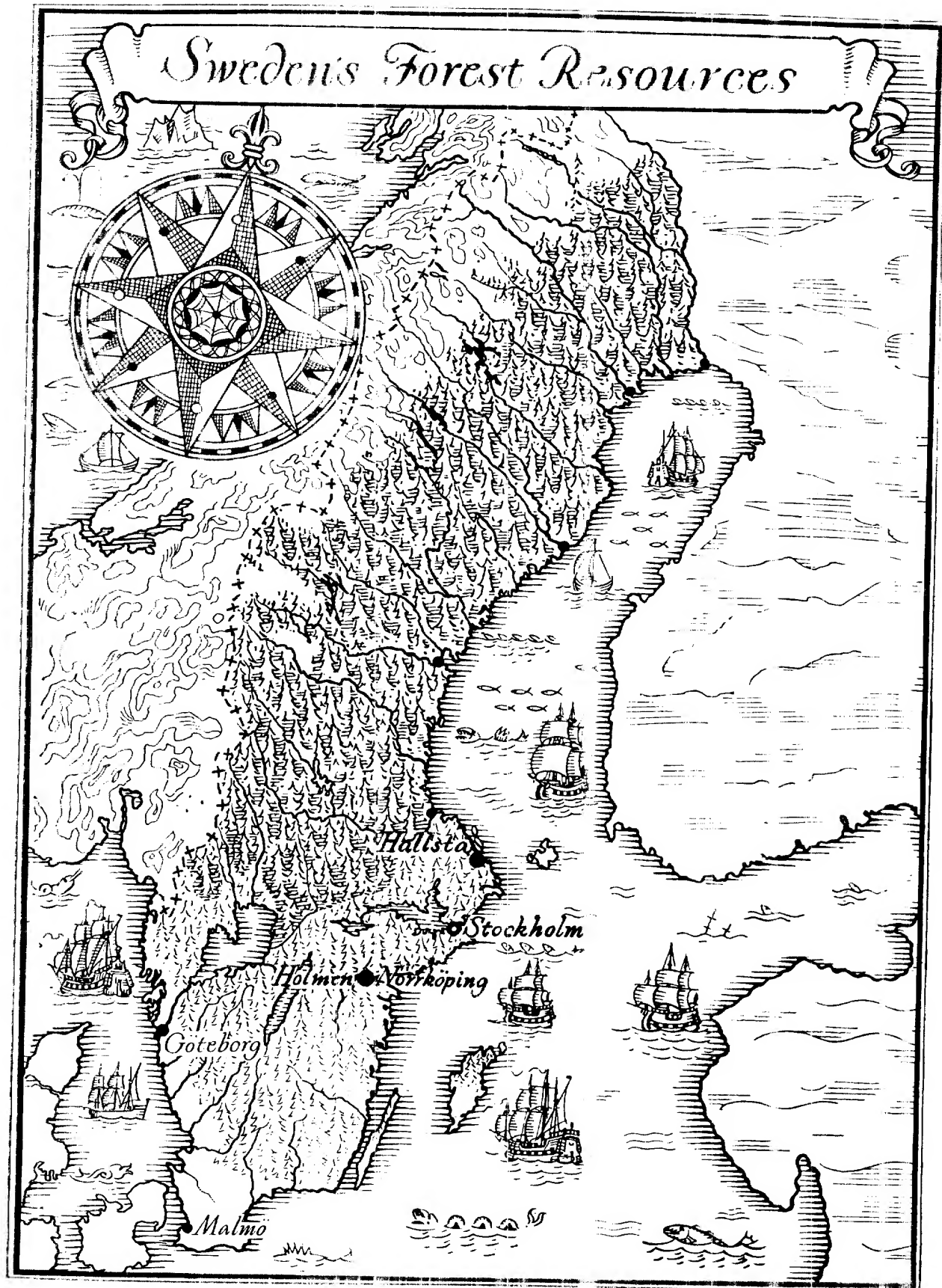


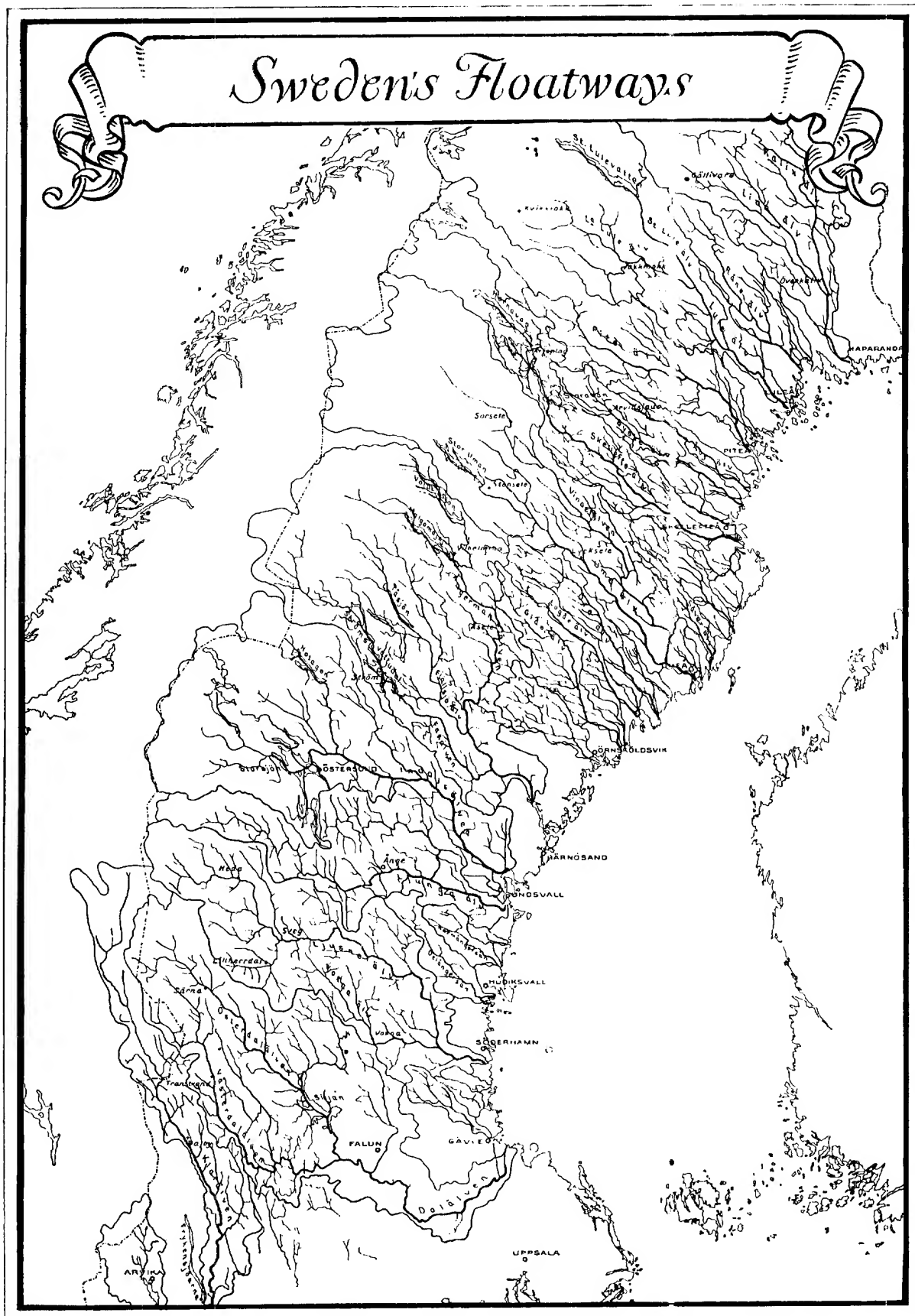
The logs are stored either on the ice of the river or on the top of the river bank. When spring comes they are dumped into the water.

the mills was determined with a view to easy access to the forest resources of the north of Sweden also. Holmen's have now a vast timber purchasing organization with branches all over the country. As a further means to secure its necessary raw materials, the Company has acquired about 250,000 acres of forests of its own.

Because of the location of the mills by the sea, transportation is done chiefly by water, but from the southern part of the country timber is brought to the mills both by rail







Map of the principal floatways in Sweden. - - - Floatways. — Water-partings.

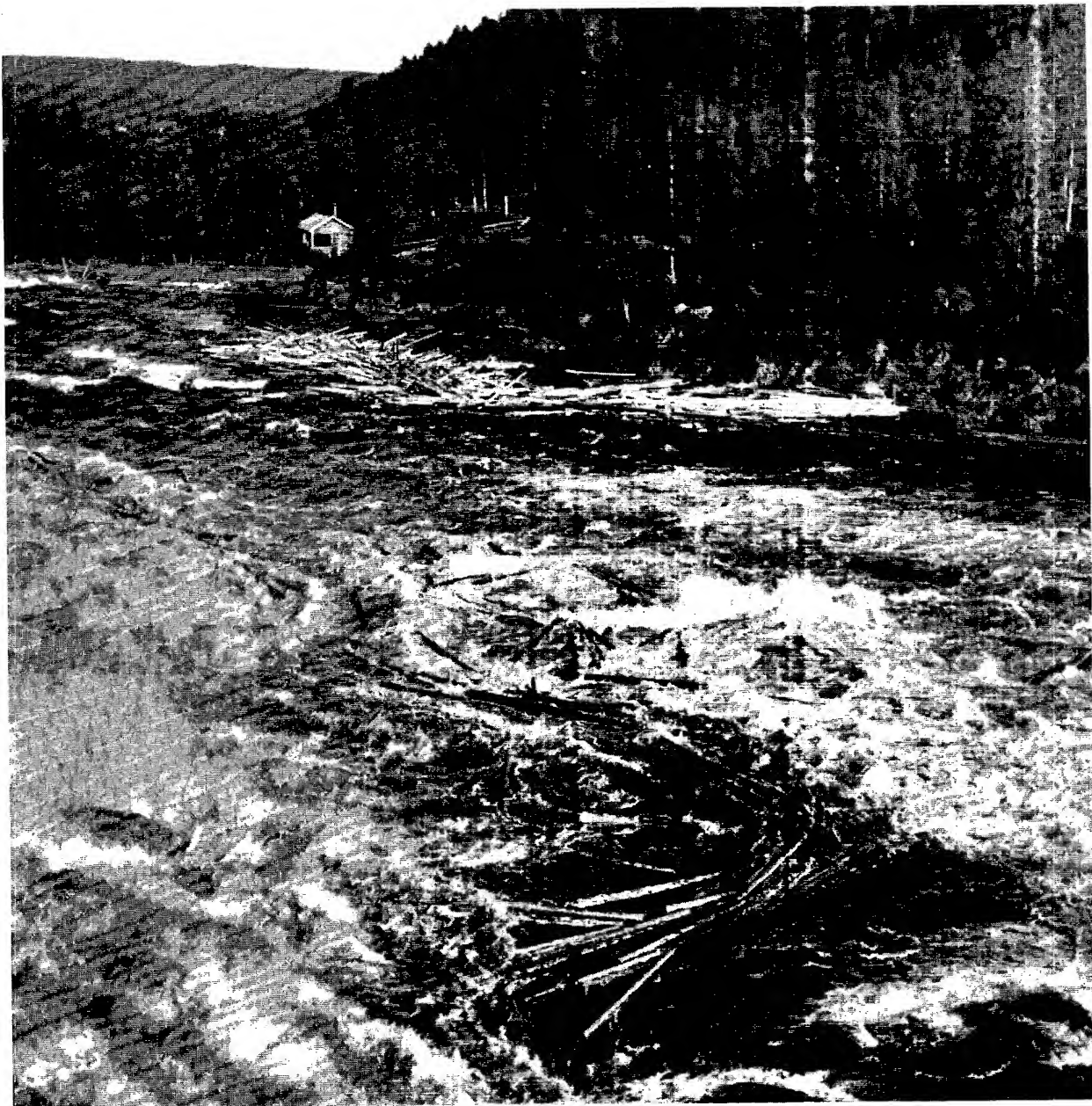




From the forest to the sea, the loggers' work.

and rock. Among the pictures in this book there are photographs of rivers where the wood is being floated down to the sea, a method which is typical of the north of Sweden. Nature and practical skill have in this territory collaborated to attain a result which is unique in the world. From the many natural water reservoirs on the forest land in the middle and western part of the Scandinavian peninsula most of the rivers run eastward into the Baltic. In the summer months as millions of logs are carried down to the

sea on the great rivers from the rich forest districts, and despite the enormous width of the wooded area, all the trees which are cut in the north and middle of Sweden need to be transported an average distance of less than two miles to the nearest floatway. But the Norhern winter, too, is an important factor in wood transport. Snow and ice make the most difficult terrain passable. From the woods the logs are cragged to the timber paths on which they are brought down to the frozen rivers by sleds. And the slope of the

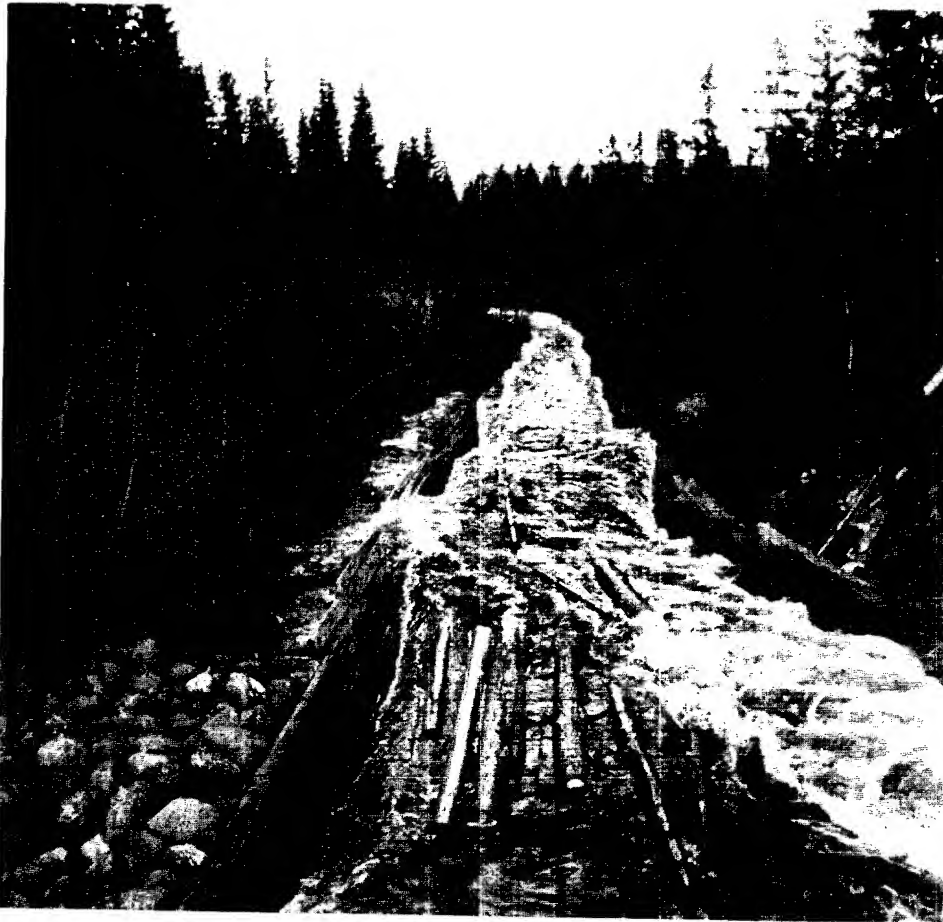


— quiet waterways and foaming rapids.

country toward the rivers greatly facilitates, of course, this transportation.

While the logs are waiting for the break-up of the ice they are measured and marked. This procedure is handled largely by associations which are impartial representatives of both buyers and sellers. Then the floating crew take charge during the long journey down the river. This work is not free from danger. The logs must pass waterfalls and rapids, and may easily get wedged in and form great jams. Sometimes these can be

broken up by removing a few logs, but sometimes dynamite must be used. The timber is now carried towards the sea, sometimes at great speed, sometimes more slowly. Now and then the river widens into a lake. If the current is too weak, the logs have to be towed to the outlet of the lake where the river again takes charge. It is not only the large rivers which are used for log transport, for very small waterways — with such artificial aids as “flumes” and dams — are also used. The total length of the floatways in Sweden is



Sometimes, artificial waterways are necessary.

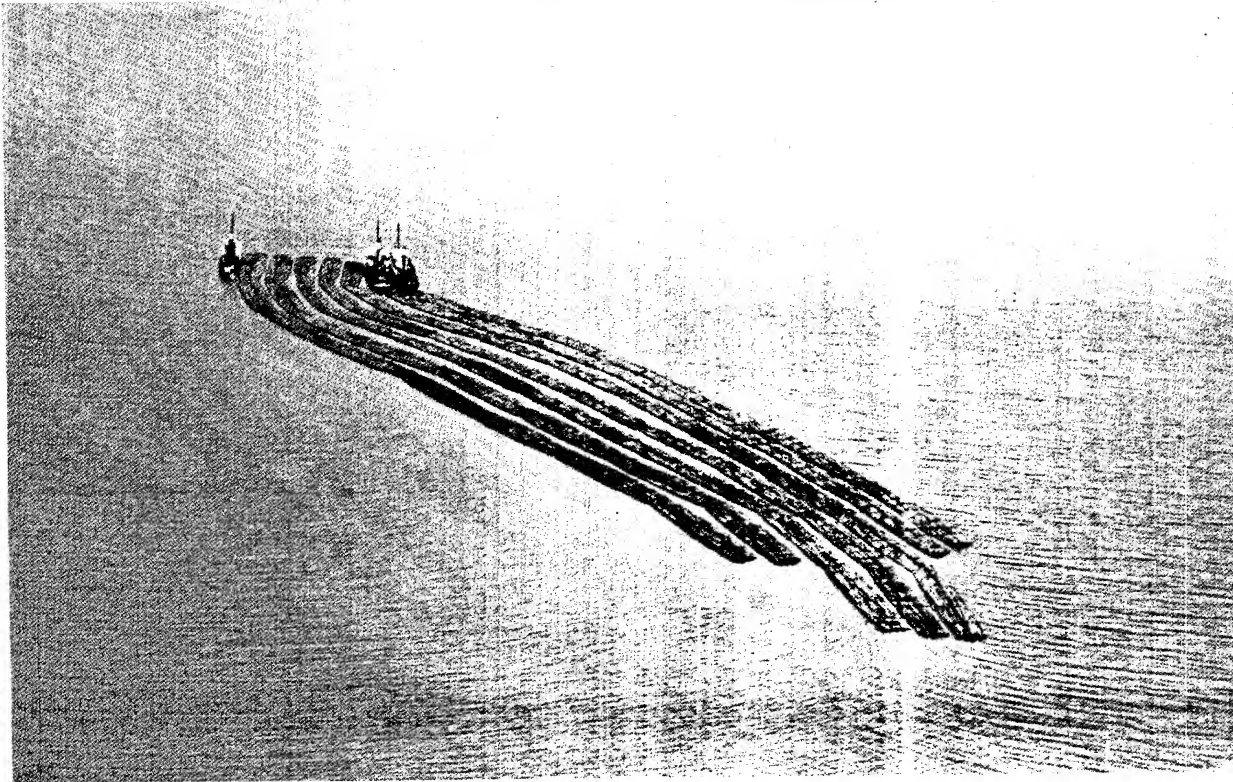
"Flumes" carry the logs past obstructions.



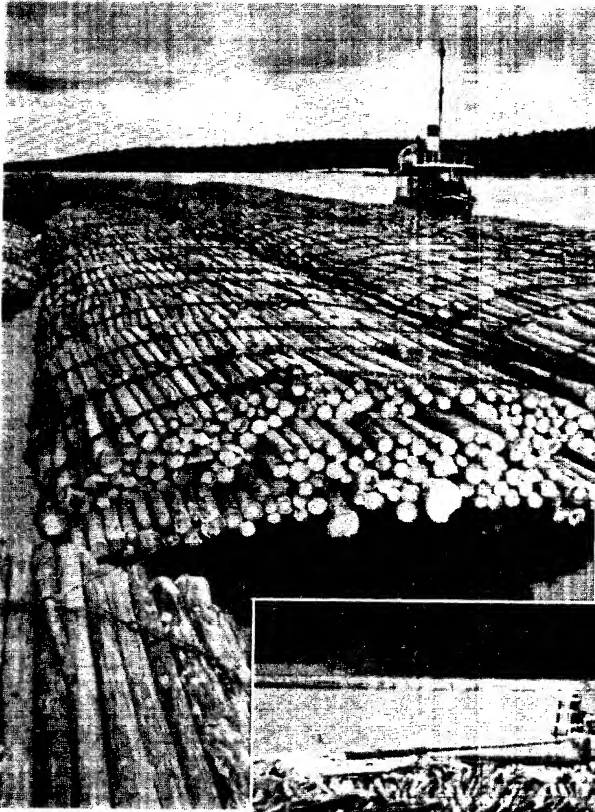




The sorting of the timber at the mouth of the river.



Timber-rafts at sea, ready for transport to the paper mill



End of the journey.  
The timber-rafts off  
the mill.

about 20,000 miles. Finally the timber reaches the mouth of the river, all the logs belonging to the different owners being mixed up. The logs must, therefore, be sorted, and this is done with the help of the markings which have previously been made on their ends. The river transportation, which is paid for by all the timber owners through a mutually operated organization, is then at an end. The logs are now lashed together and towed to nearby factories or to a central point at the mouth of the river where great rafts are built, suitable for towing on the open sea to mills farther away. Such a raft is held together by heavy chains and consists of about 100 "cords" of timber. About 50 of these rafts are linked together as a long chain which is towed along



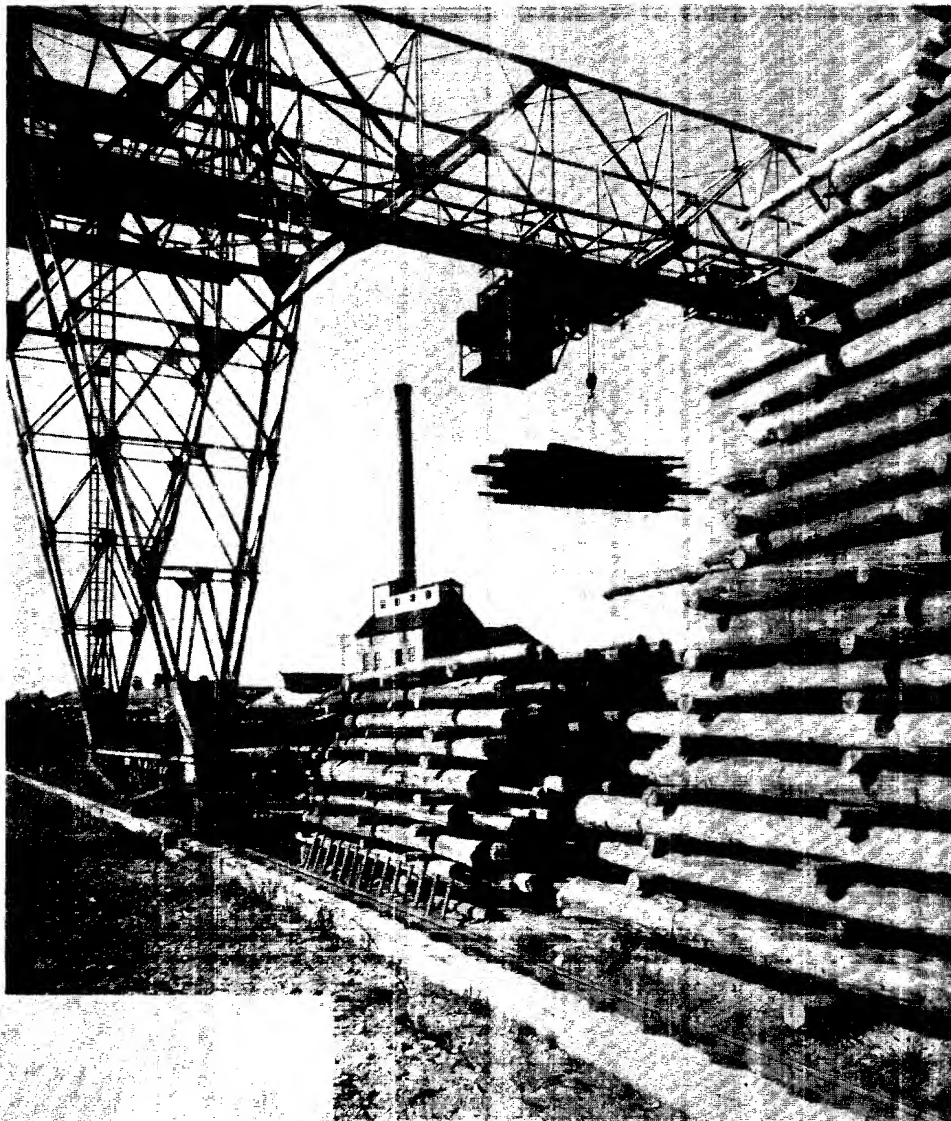
Logs for firewood  
are taken into the  
factory.



The conveyor by which the timber is taken from the sea into the mill. Rafts of pulpwood and firewood.



Timber stacking.

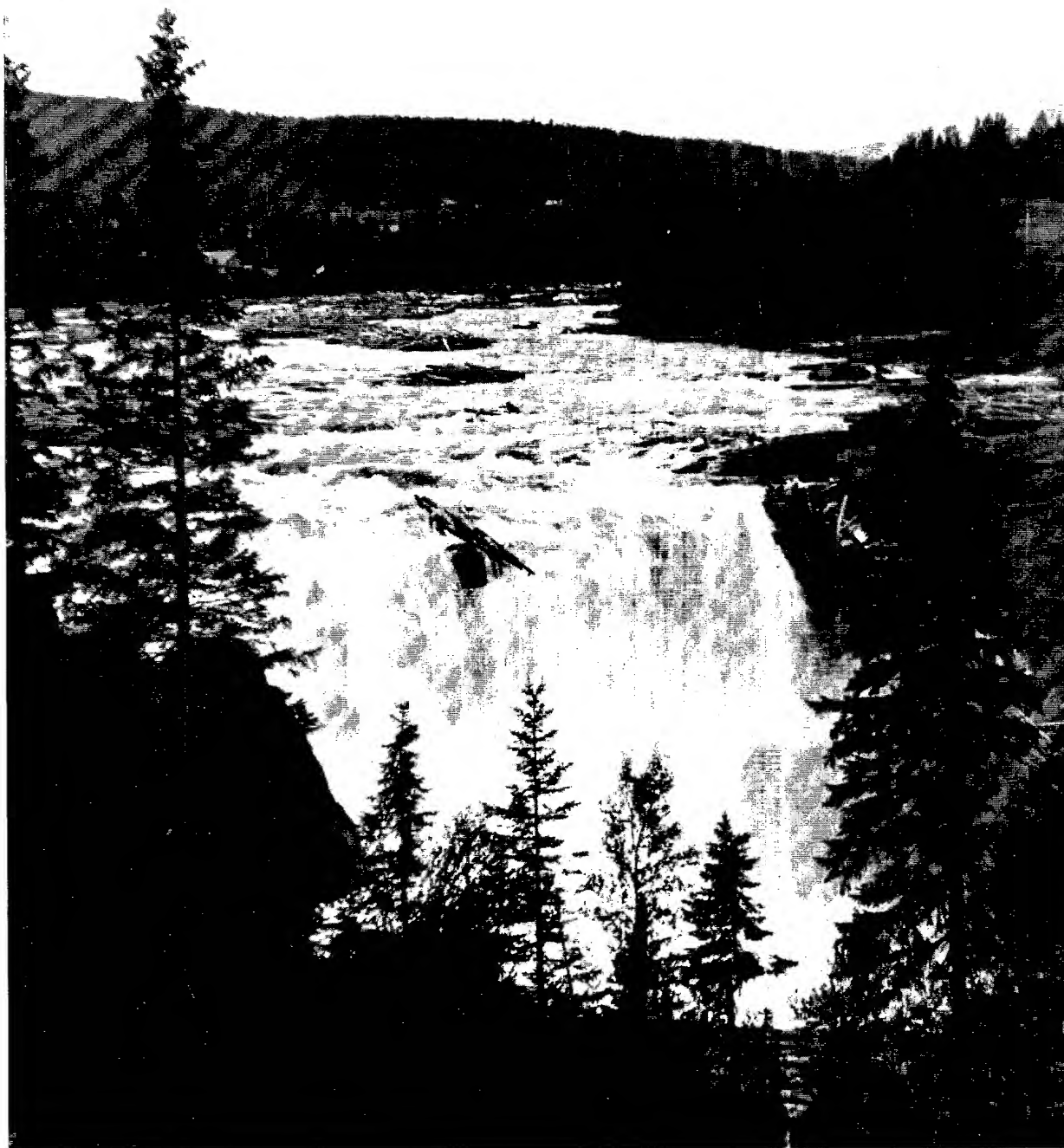


The logs are fed to the conveyor.



the coast by tugboats. Holmen has been a pioneer in the field of wood transportation. Through the new methods and improvements which have grown out of long experience, skilled personnel, and first-class machinery and equipment, losses have been reduced to a negligible fraction of one per cent: in spite of the fact that the tows are frequently faced with heavy weather on the way along the coast to the factories. The towing is chiefly accomplished by the Company's own tugboats.

Sweden's rivers are used not only for transportation of timber, for about 95 % of the electric power produced in the country is also generated from the numerous waterfalls. And if fully utilized, these are calculated to be able to give about 36,000,000,000 kilo-watt hours annually, but at the present time only



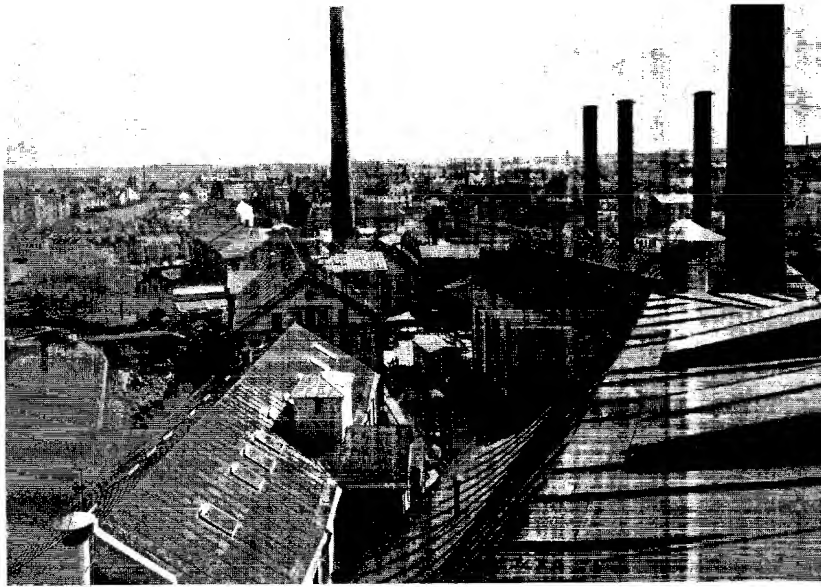
about one-third of this amount is taken out. The easy access to plentiful electric power is of the greatest importance to the paper and wood-pulp industries, which require large amounts of such power. The rivers thus perform the twofold function of creating the power and carrying the raw material.

It was the rapids in the river which in the time of Louis de Geer gave reason for the industrial plants at Norrköping. These rapids

now produce a total of 14,500 kilo-watts in the Company's own power-stations, which power is chiefly used in the paper mills. The power-station is also connected with the Government's power-distribution system, making it possible to acquire supplementary power in this manner. The mills at Hallsta receive their power from their own steam turbines in addition to the Government power-stations.



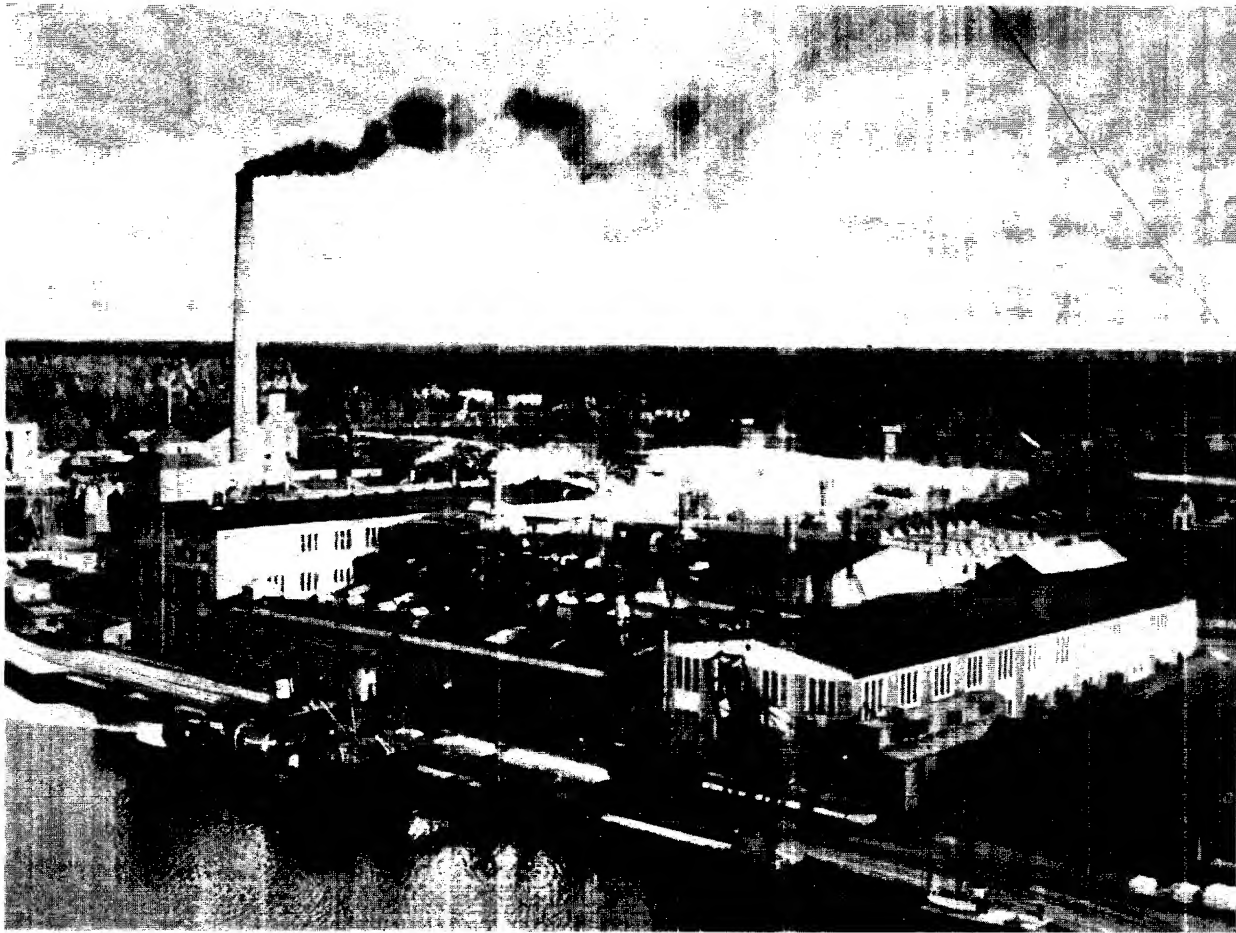




## PAPER TODAY

The general industrial development which has taken place from the beginning of the present century, and which has created for Sweden a position as an industrial country, has also left its traces on the activities of Holmen. The Company achieved its present size and structure chiefly under the leadership of Mr. Carl Wahren, who was managing director during the years 1907 to 1938. During the whole of this period, there was a ceaseless process of rebuilding and modernizing in the paper mills, as well as in the textile

factories. Earlier, the business had been exclusively confined to Norrköping, but during this period the paper mill at Hallstavik was erected, with the result that paper production more than doubled. The mill at Hallstavik is situated on an inland arm of the Baltic, about 60 miles north of Stockholm, and it so happens that Louis de Geer had one of his earliest properties near this place. Another parallel with the time of de Geer is that textile manufacturing was resumed on a large scale by the acquisition of important textile mills in



The modern plant at Hallstavik, with forests in the background.

Norrköping in 1926. The growth of the concern is illustrated by the fact that its net value between 1907 and 1938 became multiplied over thirteen times, and amounted in the latter year to about \$ 22,000,000, or £ 5,500,000. To give data and detailed descriptions of all the new plants which have been added to the concern during this period and up to date would take us too far afield, and we shall limit ourselves to some fundamental information regarding the present plant at the two paper mills:

#### *The Norrköping Mills:*

2 newsprint machines, 220" wide, and each having a manufacturing capacity of about 40,000 tons (44,000 short tons) annually.

2 smaller paper machines for the manufacture of magazine paper, printing paper, wall-paper etc.

1 "Yankee" machine for the manufacture of wrapping paper, corrugating paper, matchbox paper etc.



From the chip bins, the chips are taken to the top of the digesters.

Groundwood mill and sulphite mill (the latter situated a short distance from Norrköping) with a capacity meeting the requirements of the paper mill.

Bleaching plant for sulphite pulp.

Waterpower station, with machinery installed for 14,500 kilo-watts.

Steampower stations and boilers with a capacity of 16,000 kilo-watts and about 140 tons of steam per hour.

Repair shops, storage warehouses etc.

#### *The Mills at Hallsta:*

2 newprint machines 189" wide, and each having a manufacturing capacity of 33,000 tons (36,000 short tons) annually.

1 newsprint machine 110" wide, with a capacity of 20,000 tons (22,000 short tons) annually.

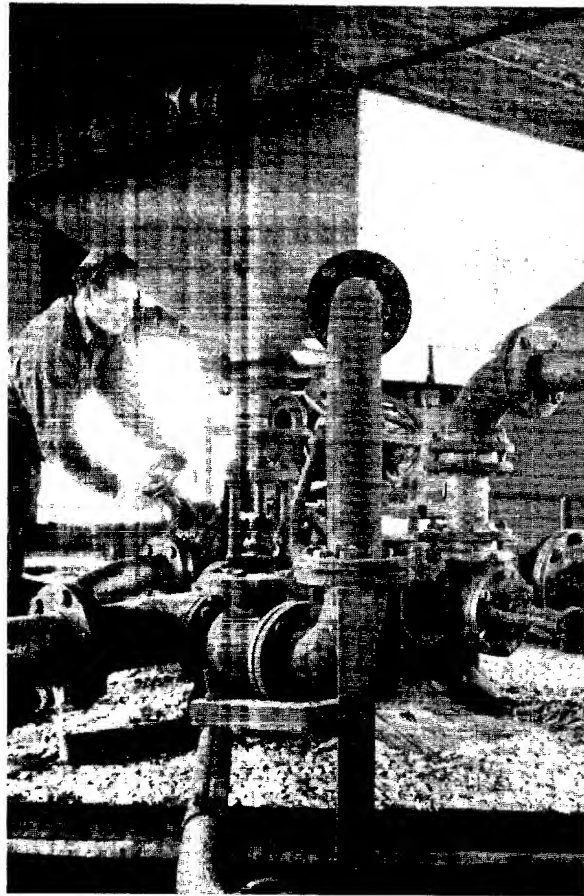
1 "Yankee" machine for the manufacture of wrapping paper, corrugating paper, matchbox paper etc.

Groundwood and sulphite mills with a capacity meeting the requirements of the paper mill.

Steampower plant and boilers with a capacity of 7,000 kilo-watts and 70 tons of steam per hour.

Repair shops, storage warehouses etc.

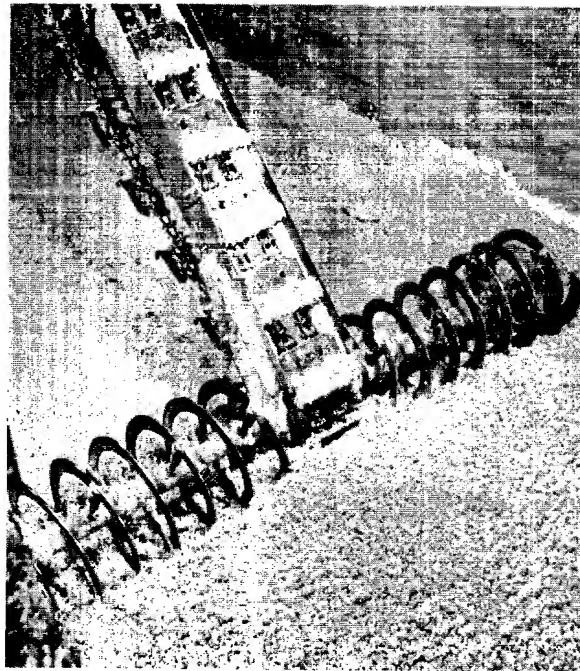
In the course of time there have been important technical developments in the field of



Filling a digester with chips.

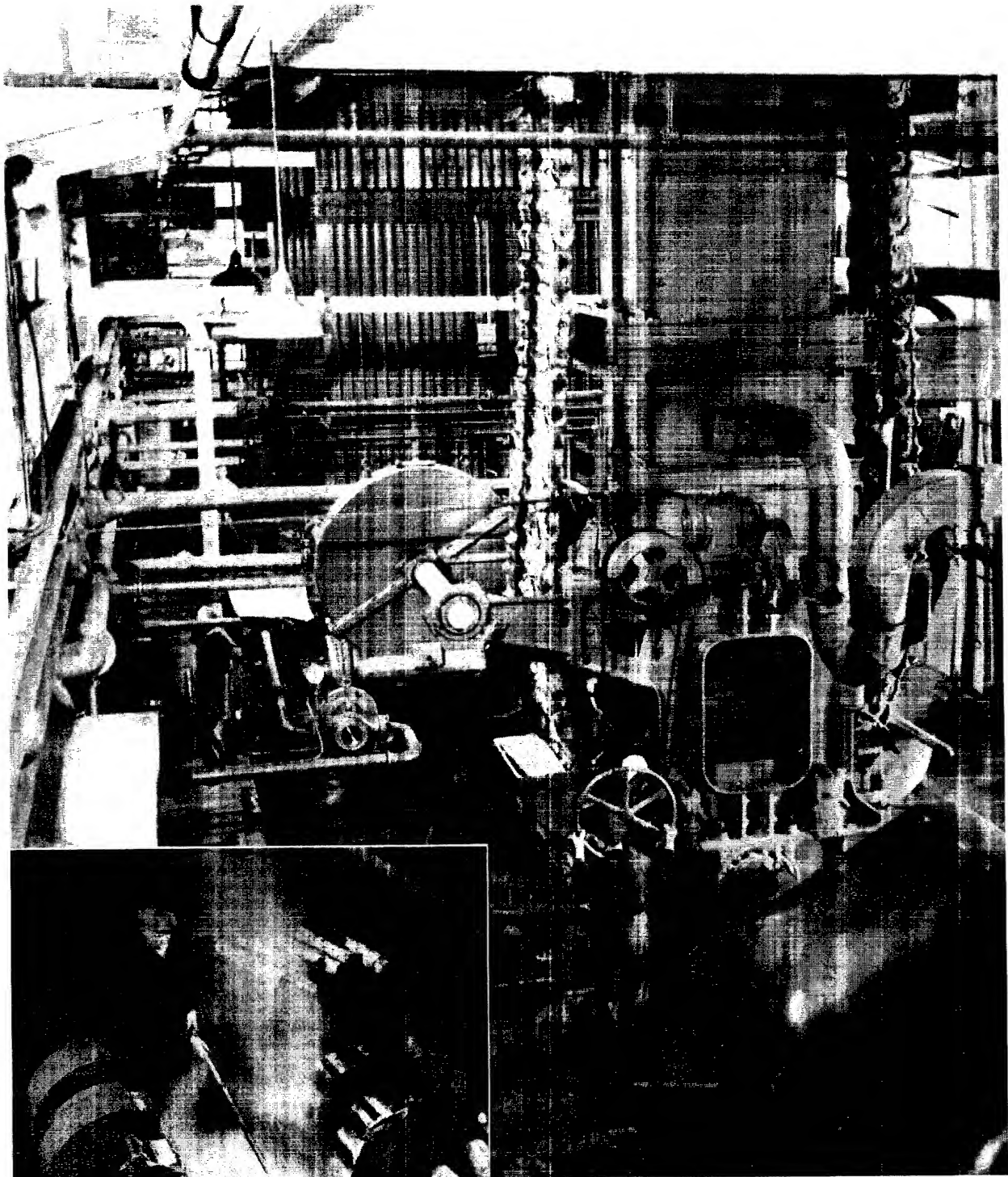


Discharging a digester.



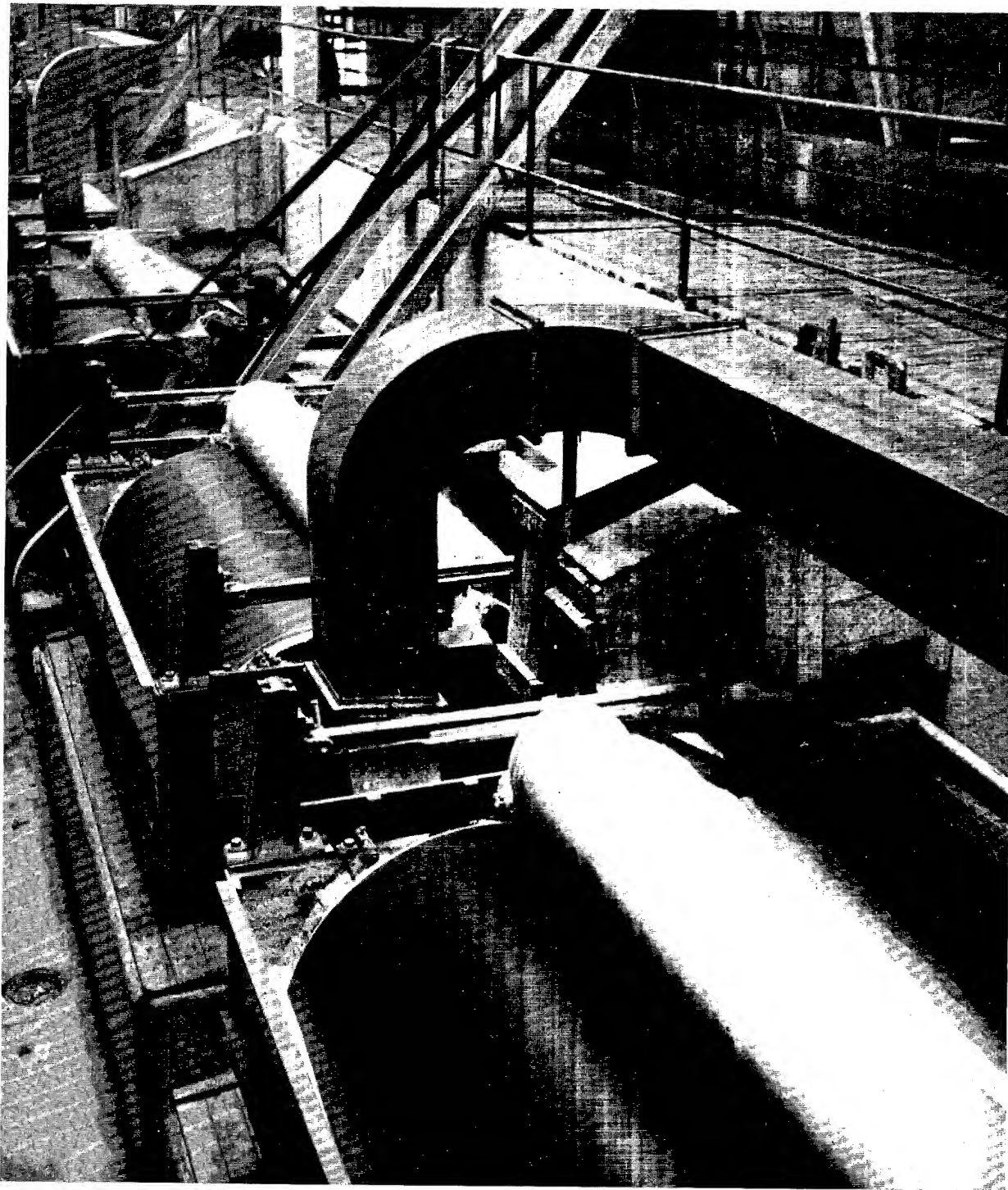
The pulp is dug from the vat by this device.





Move — into view of the grinding mill with continuous grinders.

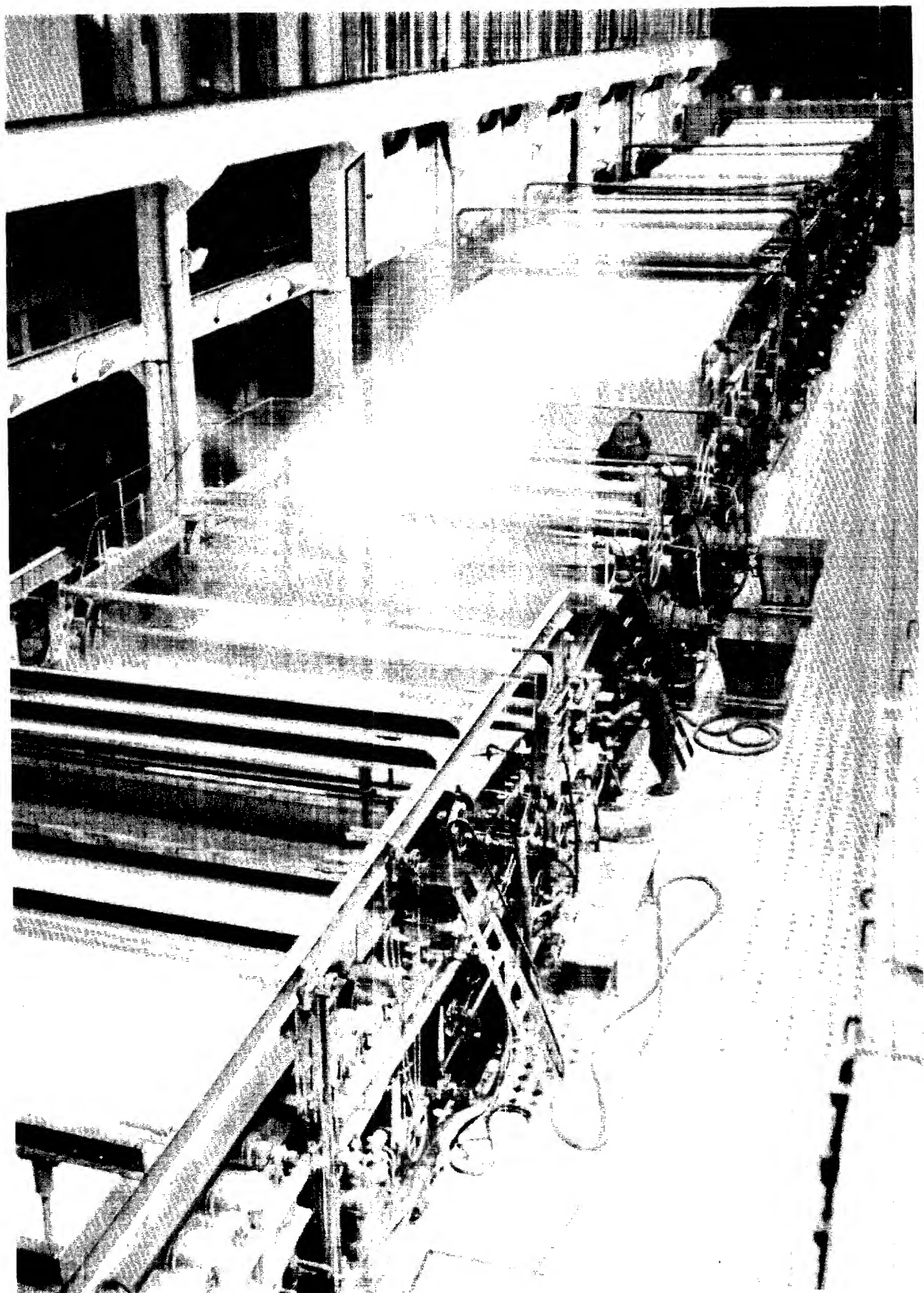
Left — placing the wood in a grinder



The groundwood pulp is dewatered before being pumped to the paper mill.

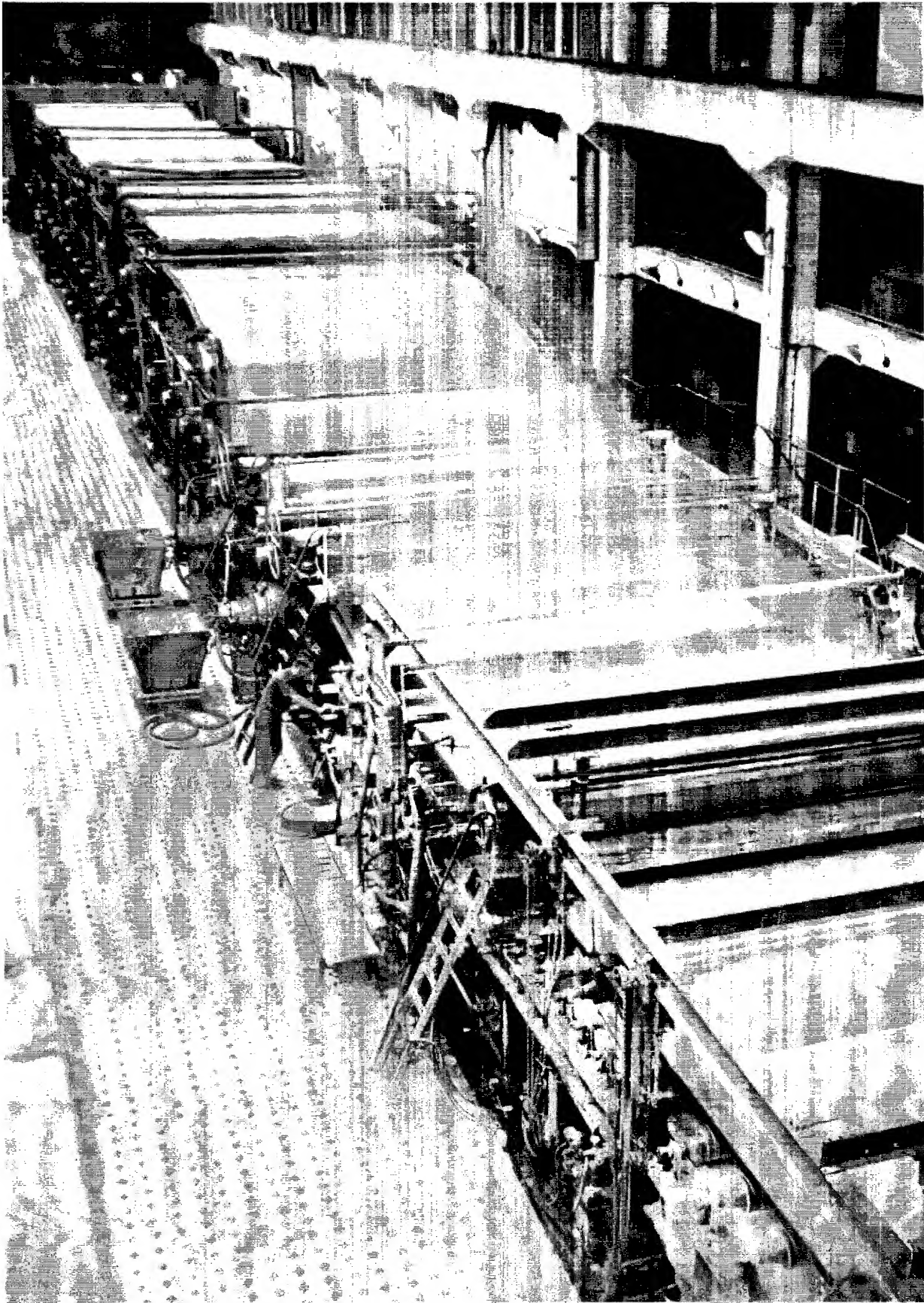
paper manufacturing. The management of the Holmen concern has always been anxious to keep in the closest contact with these developments. Neither effort nor expense have been spared to keep the plant up-to-date, and the difficulties created by the war during the past few years have not been allowed to pre-

vent the continuous process of modernization. Competition has become keener because of technical progress, and this has been of advantage to the users as well as to the makers of paper. The Company's engineers have established a lively exchange of experiences and information with the rest of the paper



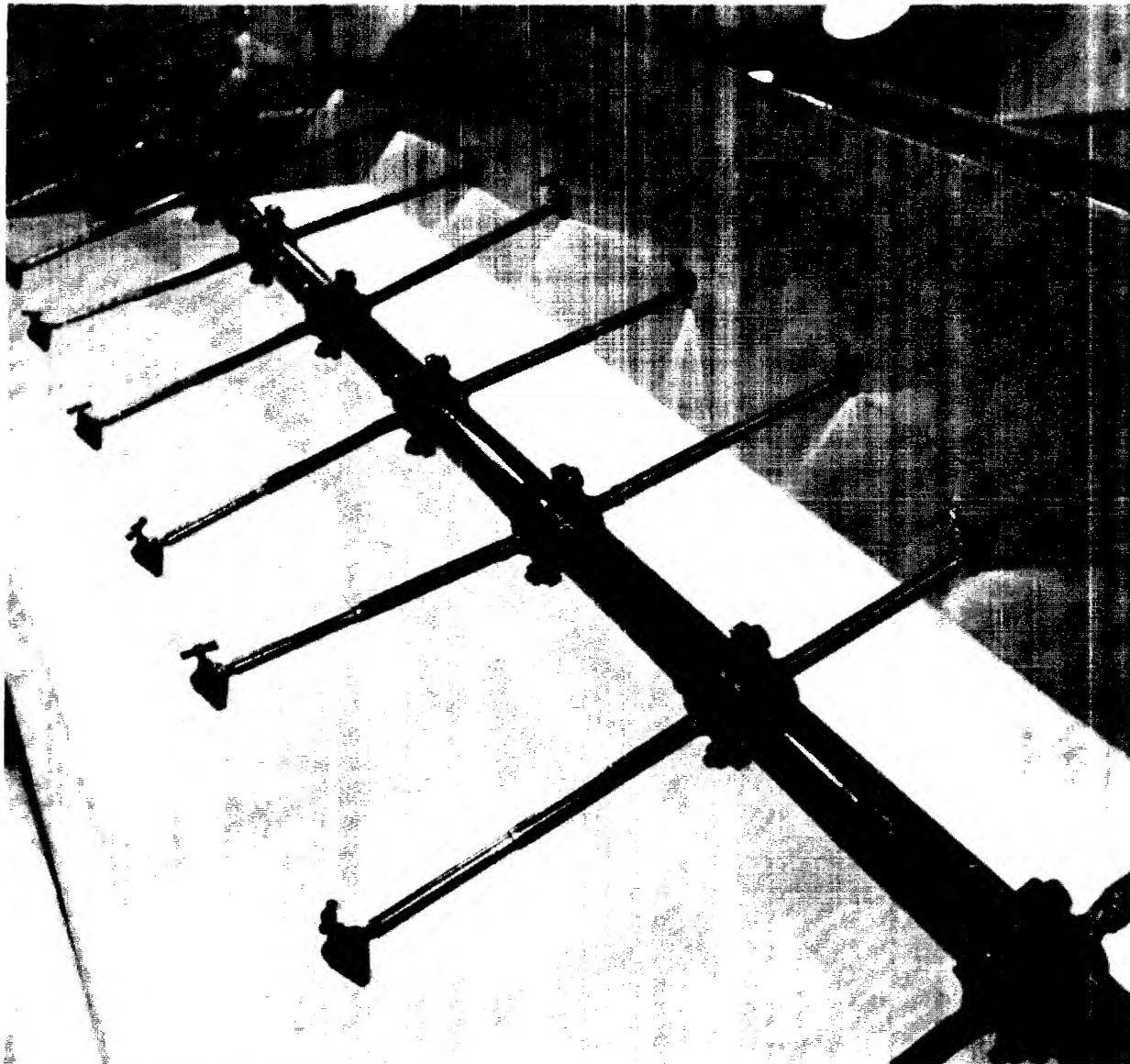
Where the pulp becomes paper. Two of the



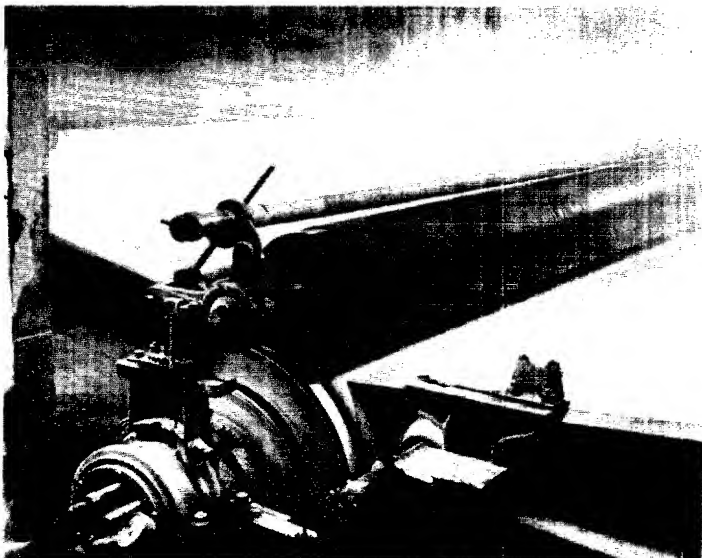


Fourdrinier machines seen from the wet end.

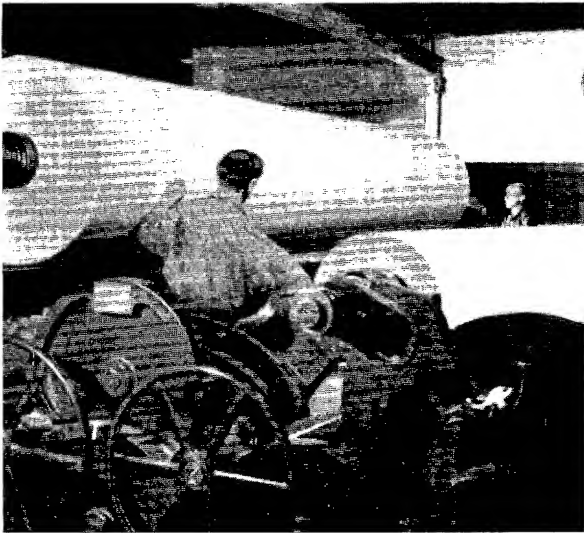




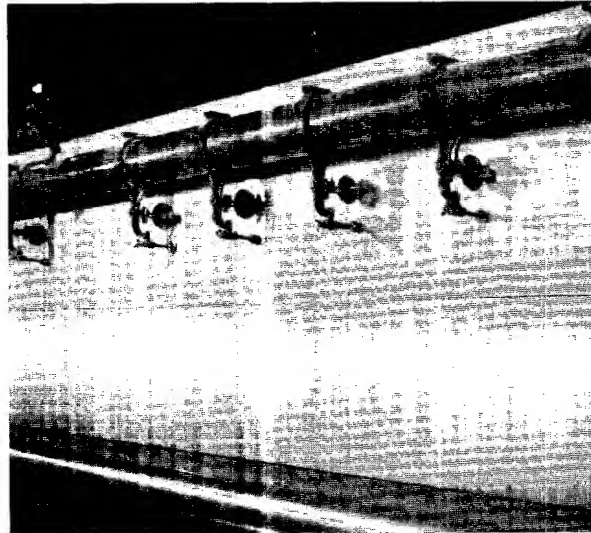
The lead box. Spraying equipment for counter-acting foam.



The suction couch roll - where the paper leaves the wire.



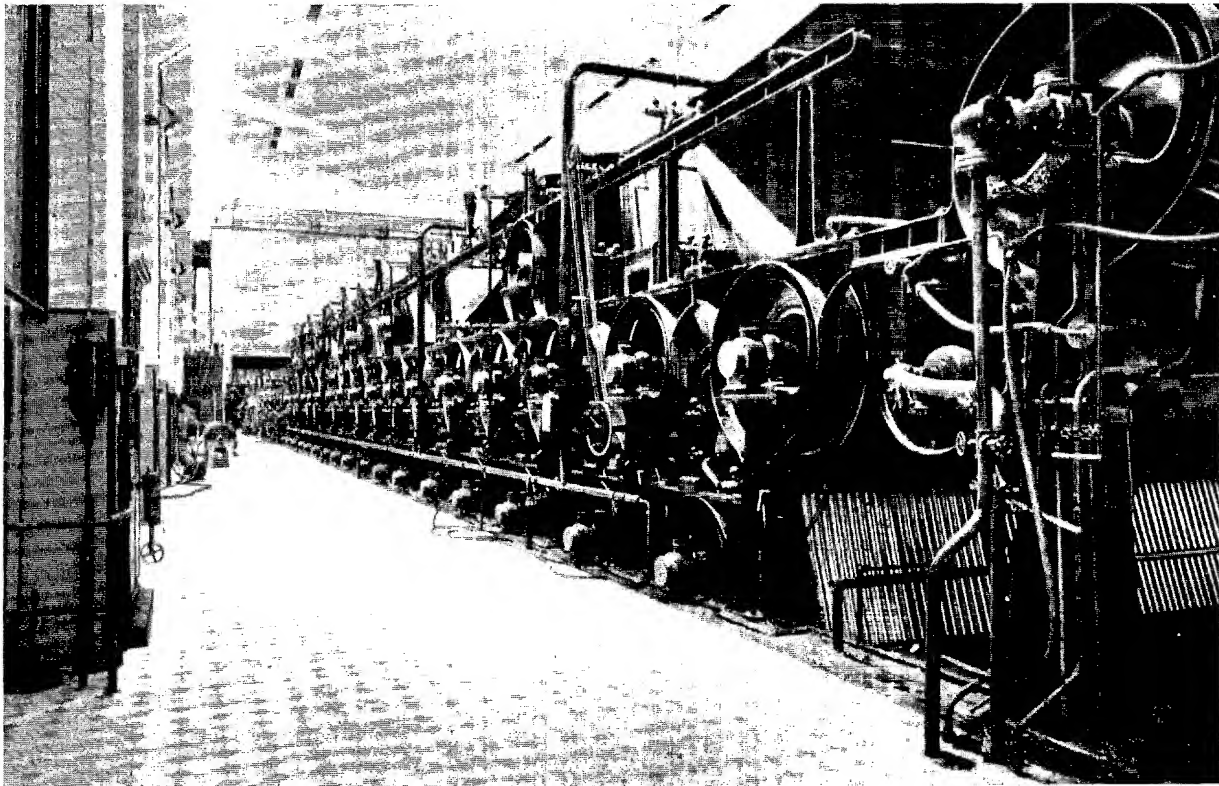
The finished paper is rolled into large rolls which are —



— rewound and cut into desired widths in the rewinder.

producing countries of the world. In this connection, it should be mentioned that from the point of view of quality, the fact that the Company produces its own wood-pulp, both ground wood and sulphite, in intimate contact with the paper mill, has proved of the greatest benefit.

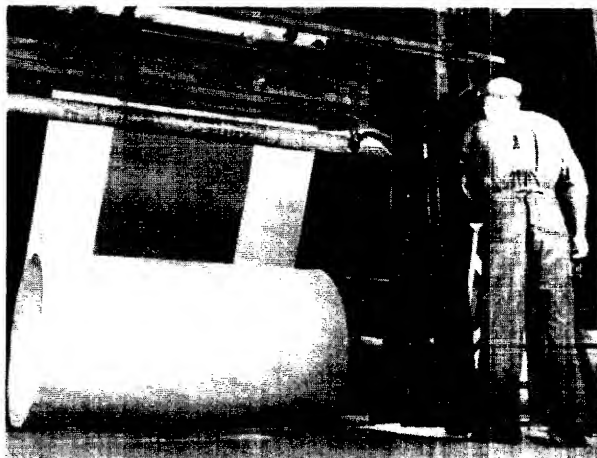
In the Royal Charter which King Gustavus Adolphus issued to Louis de Geer in 1627 the expectation was expressed, in the flowery language of the time, that the concern might always be so conducted that it would be "To the honour of the king, to the ornament of the city, and to the benefit of the country".



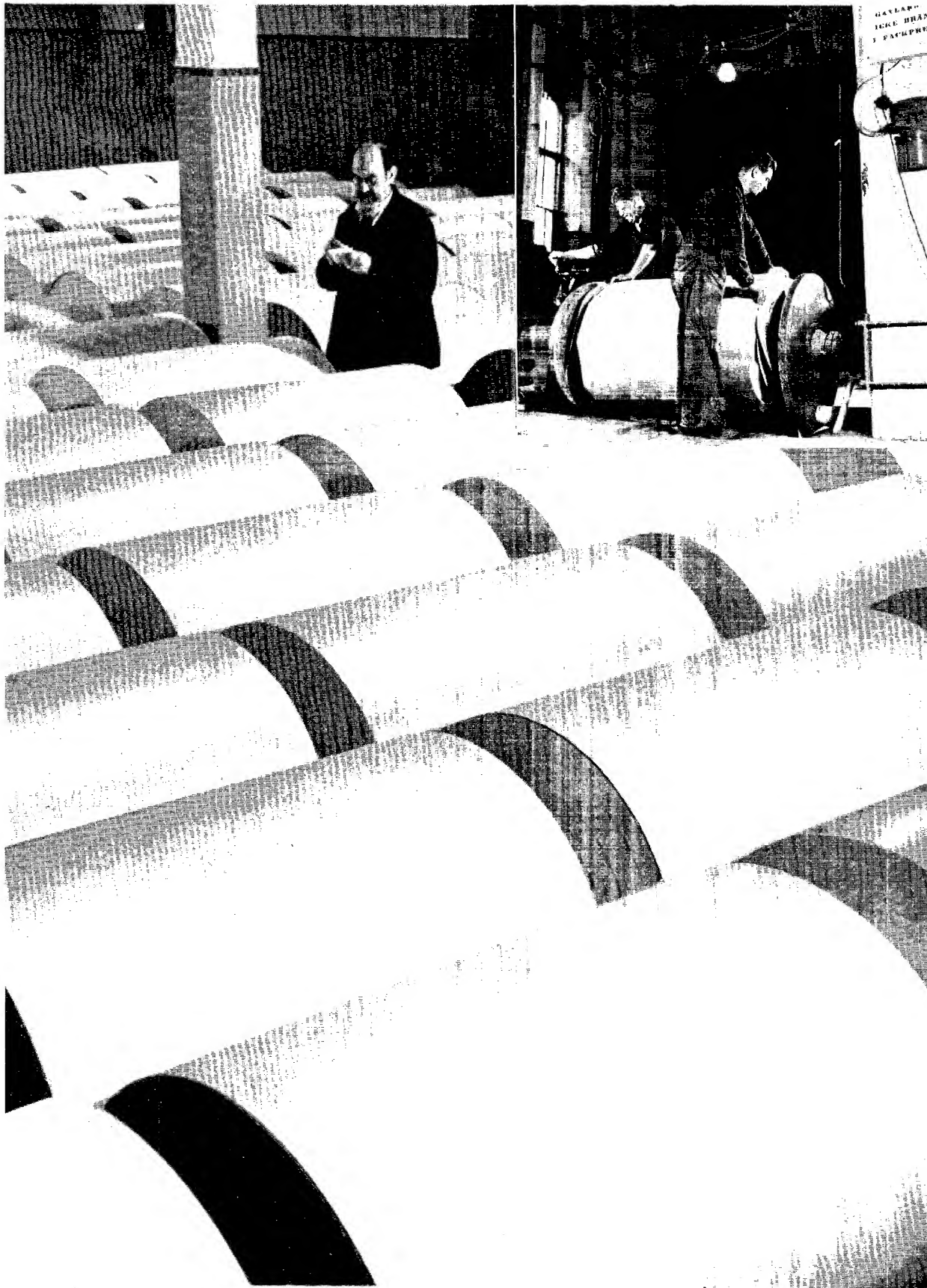
One of the newsprint machines -- the driers.



The paper in this machine is over 6 yards wide



The wrappers are put on in an important detail



Rolls of paper ready for wrapping. Inset: The ends are glued on in a special machine.



The Company hopes that this expectation will also be fulfilled in the future and derives this hope not only from the far-seeing spade-work of past generations who helped to make the

concern what it is to-day, but also from the ability and devotion to duty of all those workers and technicians who to-day are the backbone of the Company.



Night at Hallsvik.



## HOW THE QUALITY IS MAINTAINED

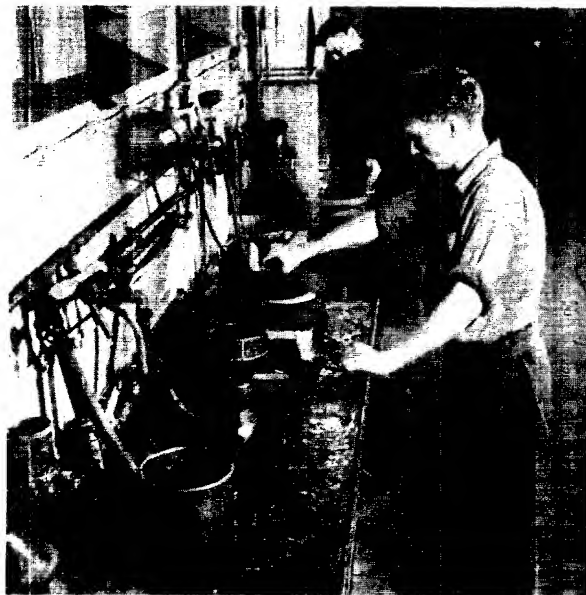
In spite of intense research, cellulose still holds many secrets which stimulate inspired work in thousands of laboratories throughout the world. And strenuous efforts are constantly being made in that wide field of coordinated factors which contribute to produce the final quality of newsprint paper. Good raw materials, technically perfect machinery, and a skilled personnel are not sufficient to obtain a product of high and even quality. To obtain such a result continual study and an ever-watchful supervision are also necessary.

In this important matter Holmen has accomplished much.

The routine tests are made in the laboratories in the respective mills, and in direct conjunction with the current production. The laboratories never rest. Their staffs follow the course of manufacture 24 hours a day: from the raw material to the finished product. The results of the tests are collected in the main laboratories of the mills, where the findings are dealt with more scientifically. It is not only the raw materials, the pulp, and



Determining the specific gravity of the wood.



Testing the groundwood pulp.

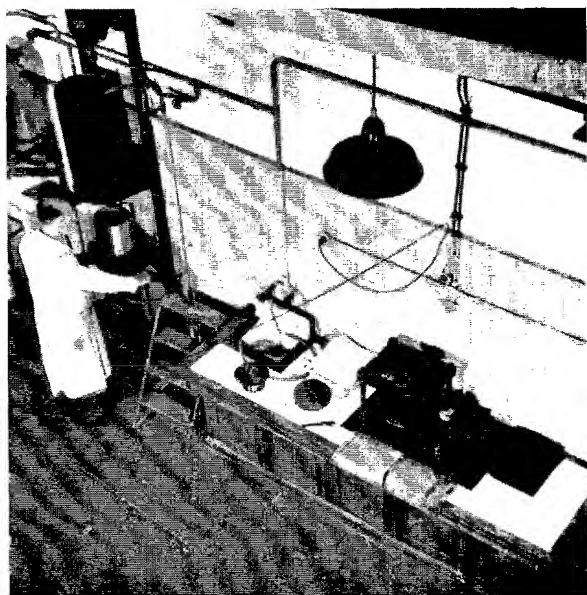
the paper which are studied here, but also the general conditions during the process of manufacture.

Great attention is given to the examination of the wood, as the quality of the paper is highly dependent upon this. The consi-

stency and bacteriological condition of the water is checked through chemical and bacteriological tests. In the testing station of the groundwood mill the pulp is frequently tested in order to find the de-watering ability, strength, purity, and quality of the fibre. In



In the sulphite mill, the composition of the cooking acid is determined for each "cook".



Sheets are formed to test the strength of the pulp.



Checking the basis weight of the paper.

the sulphite mill the acid-manufacturing, the cooking, and the finished pulp are checked through repeated tests and with automatic instruments. At frequent intervals the pulp and water circulation systems of the paper machines are tested, and figures are compiled

for temperature, acidity, freeness, and percentage of rosin. The efficiency of the paper-machine presses and driers is checked through moisture tests on the presses, and measuring of temperature on the driers.

The testing and examining of the finished



Checking the purity of the pulp after screening.





Determining the moisture content of the paper.



Some papers are more porous than others. Gurley's "densometer" tests it.



Gauging the thickness of the paper.

paper is one of the most important parts of the work of the control department. The paper is submitted to a series of tests which together are intended to reveal the quality. Nowadays the requirements of newsprint paper are very high, and briefly, the desired characteristics are as follows:

The strength of the paper should be sufficient to permit uninterrupted running through fast printing presses. It should be able to absorb the ink quickly and evenly, and at the same time reveal an intensely black print: without however any "strike-through" or "show-through".

It is fairly easy to determine the strength of the paper with the help of existing instruments. It is, however, more difficult to deter-

mine the factors which influence the "printability". Thanks to the pioneering work done by the well-known Danish paper specialist, Chr. Bendtsen, and the inventions made by him, it has also become possible to solve the latter problem. Holmen has had the advantage of close collaboration with Bendtsen over a period of many years. The Bendtsen methods of quality control for paper are used by Holmen along with other testing methods, which are still useful from the viewpoint of manufacturing control. A brief description of the Bendtsen apparatus and methods as used by Holmen may be of interest. In the description reference is made to the accompanying photographs.

The "Substance Variation Tester" shows



Bursting strength revealed by the "Mullen tester".



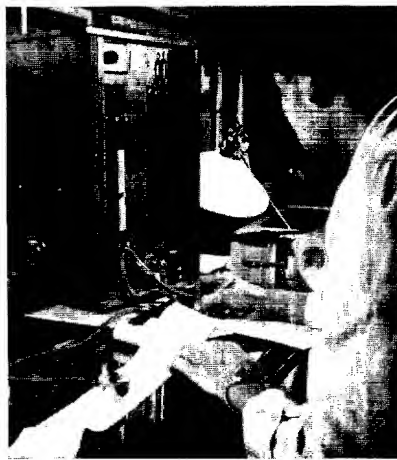
Tensile strength tested in Schopper's instrument.



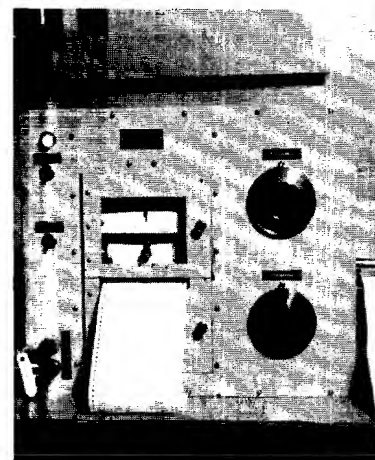
Tearing strength is determined with Brecht-Inser's instrument.



Bauch & Lomb's opacity tester.



Bendtsen's instrument reveals the smoothness of the sheet.



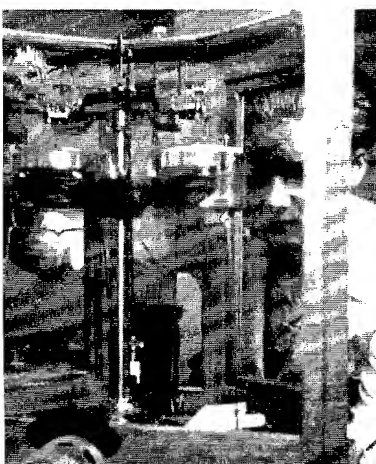
Substance variation tester — Bendtsen's system.

the basis weight of the paper, and draws a graph of this — or to be more exact, a graph of the amount of fibre per square unit of paper. Tests are made on long strips of paper taken across the machine, and the instruments register every 2" on these strips. These graphs facilitate greatly the adjustment of the flow boxes of the paper machines and contribute to the best possible distribution of the fibre, so that an even basis weight over the whole sheet can be obtained.

The "*Surface tester*" makes possible a numerical determination of the evenness of the surface of the paper without the influence of irrelevant factors. This has not been possible in apparatus constructed previously. Naturally the smoothness of the surface greatly

affects the printability of the sheet. With the same apparatus, the "porosity" — that is: the degree to which the paper allows air to penetrate — can also be determined: a factor which has a certain influence on the ink-absorbing power of the paper.

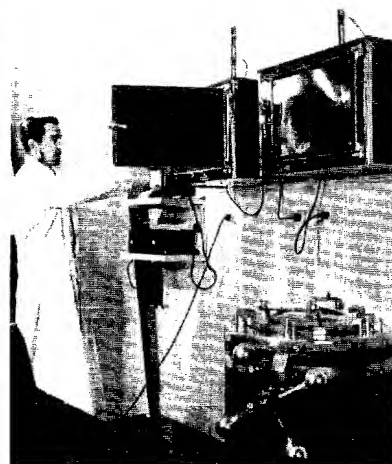
"*Trial Printing*" according to Bendtsen's system is a standard method which has been arrived at by very thoroughgoing investigations. Using a standard ink in a pre-determined way, samples of the paper are "printed". By determining the blackness of the printed area it is possible to obtain a numerical expression of the printability of the paper. A good paper gives an evenly black surface, whereas an inferior paper has a greyish look. At the same time the degree to which the



Weighing before the trial printing.



Trial printing according to the Bendtsen system.



From the bacteriological laboratory.



Examination of pulp and paper by microscope -- fibre morphology.

printed area can be seen on the reverse side of the paper can be measured. Comparisons are then made with unprinted paper, in order to determine the extent to which the print shows through. In this manner very useful information can be obtained regarding the behaviour of the paper in the printing press, especially about its ability in receiving solid blacks and the comparative amount of strike-through which can be expected.

The quality-supervision at Holmen's generally operates along the following lines:

From each reel coming from the machine samples are taken along the entire width of the machine. These samples are tested for the basis weight, the moisture content, and the strength of the paper. The tests of strength are so-called "bursting tests", "tensile strength tests", and "tear tests". The bursting tests are accomplished in a Mullen-tester, which measures the pressure (in lbs. per square inch) which the paper can support. The tests

of tensile strength are done with Schopper's instrument by increasing the stress on a strip of paper of certain width until its breaking point is reached. The tear test is finally done with the so-called Brecht-Imset's apparatus, in which the resistance against tearing can be followed accurately.

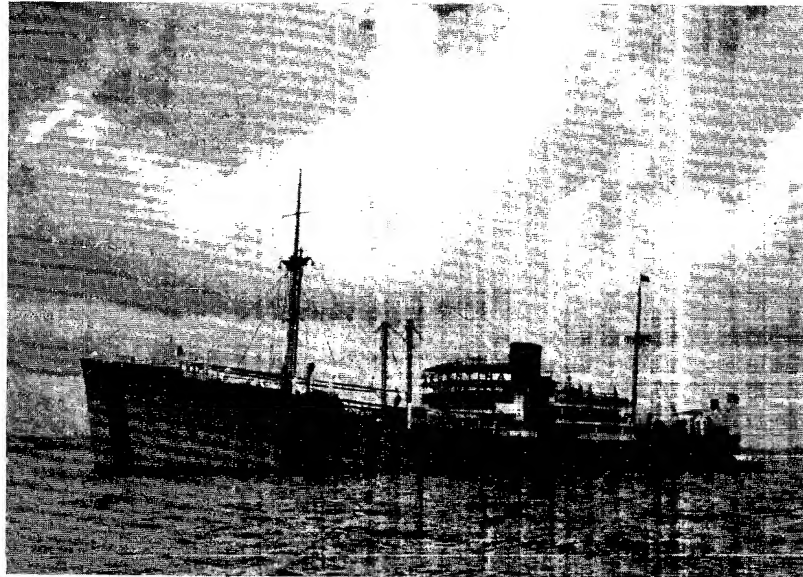
In addition, frequent tests are made of the thickness of the paper, its opacity, and its porosity— and further, all the tests with Bendtsen's apparatus which have already been described.

The outcome of all these tests and examinations is given in reports, and sometimes graphs are made of the various results. These reports and graphs are studied in the different departments of the mill, in the laboratories, and in the offices. They facilitate the reaching of the goal which is before everyone's eye: always to improve the quality of the paper.



All results of the tests are given on graphs making it possible for the factory personnel to follow the working of the mill and the quality of the manufactured product.



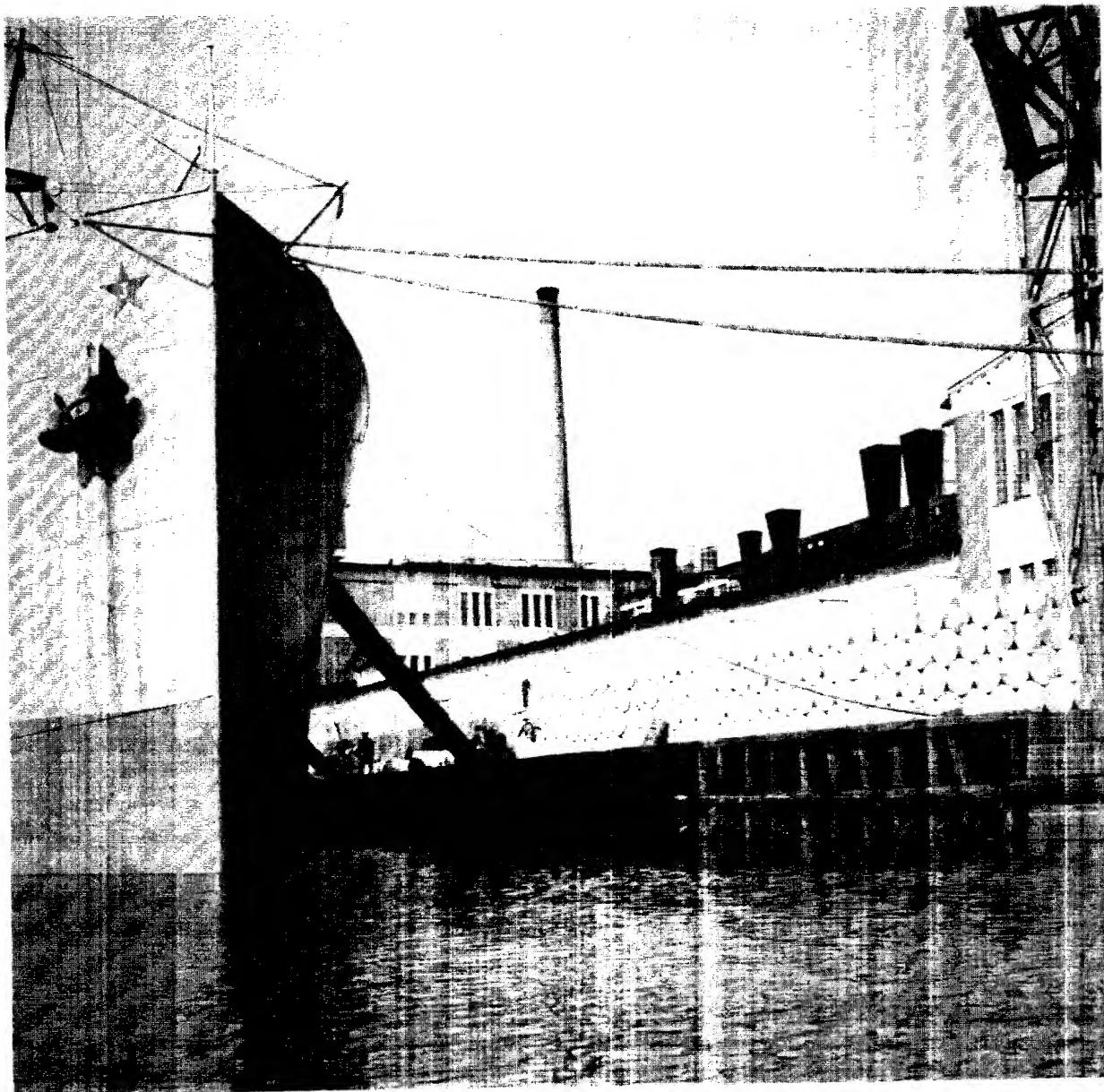


## SHIPPING CONNECTIONS

No longer do the great oceans constitute insurmountable obstacles. Instead they bind us more closely together with our markets. From an export viewpoint, Holmen's mills have a very favourable location. Both mills are situated on tide water, and have modern equipment for loading and unloading. It is true that owing to the northern latitude, ice conditions in the Baltic Sea sometimes make it necessary to resort to special arrangements in order to keep the ships moving in the winter time. The city of Norrköping has always shown an appreciation of the importance of an open port, and it is therefore well equipped with icebreakers. In the port of Hallstavik and the channels leading to it, the Company's

own powerful icebreakers carry on the fight against the ice. Experience has shown that existing ice-breaking equipment is quite sufficient to guarantee regular shipping in these channels. During particularly severe winters the floating ice sometimes causes some difficulty towards the end of the winter, but with increased assistance from the Government's ice-breaking service, these disturbances have been almost eliminated.

From the moment when the log begins its journey down the river until the final unloading of the finished paper at the port overseas, water plays an extremely important part in Holmen's products in the matter of transportation. Imported raw materials and



Direct from factory to consumer

supplies — for instance the 100,000 or so tons of coal which the Company normally uses each year — are also brought across the seas directly to the factories. The direct connections by sea make it possible, in spite of the Swedish high standard of living, for Holmen to compete in the world markets with producers who are frequently situated considerably nearer to their respective markets, but who have to depend on other methods of transportation.

Holmen secured a wide market in Europe at an early date. The step across the ocean

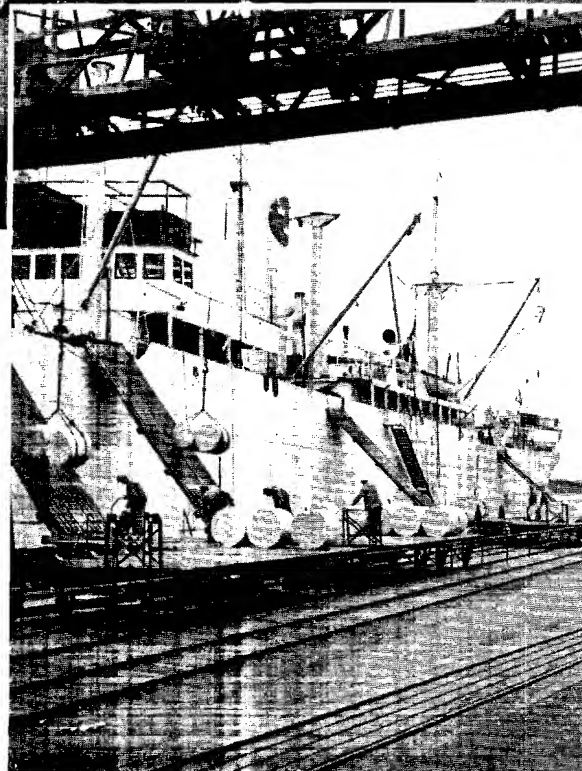
was not long in coming, and was quite natural considering the location of the factories on tide water, and the shipping facilities created thereby. Holmen's paper was soon sold in all parts of the world. In certain countries, Australia for instance, high customs duties raised certain obstacles, but other countries, on the other hand, proved much richer in possibilities. The Swedish shipping companies have regular services by fast vessels to all European ports as well as to ports on the coasts of North and South America, in the Near East, China and Africa. To

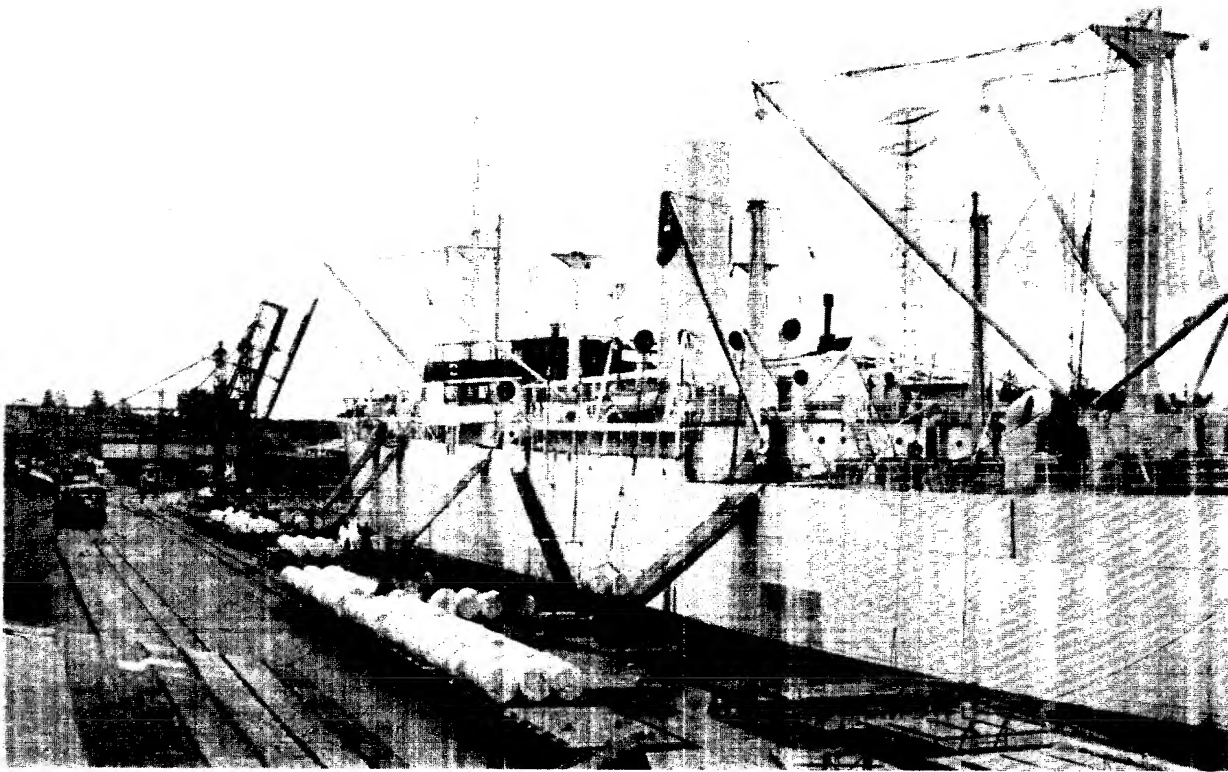


Modern handling equipment reduces damage to a minimum.

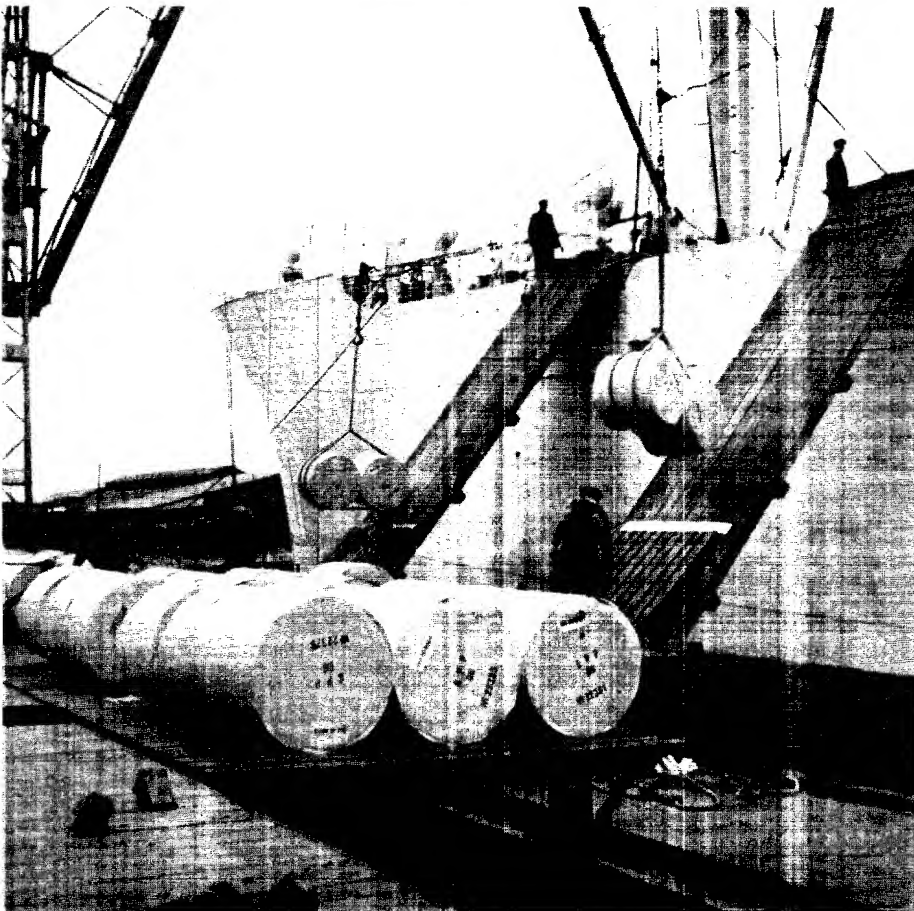
all these shipping lines, Holmen's paper is a familiar cargo.

To the readers for whom this book is written we need not underline and describe the risk of transit damage to which the paper is exposed after it has left the factory. Through careless handling the best paper may easily become unsuitable or quite unusable in a printing press. The damage to the paper may be caused by loading, trans-shipping, unloading, and handling. Holmen need not be concerned about the most serious of these phases, the handling connected with trans-



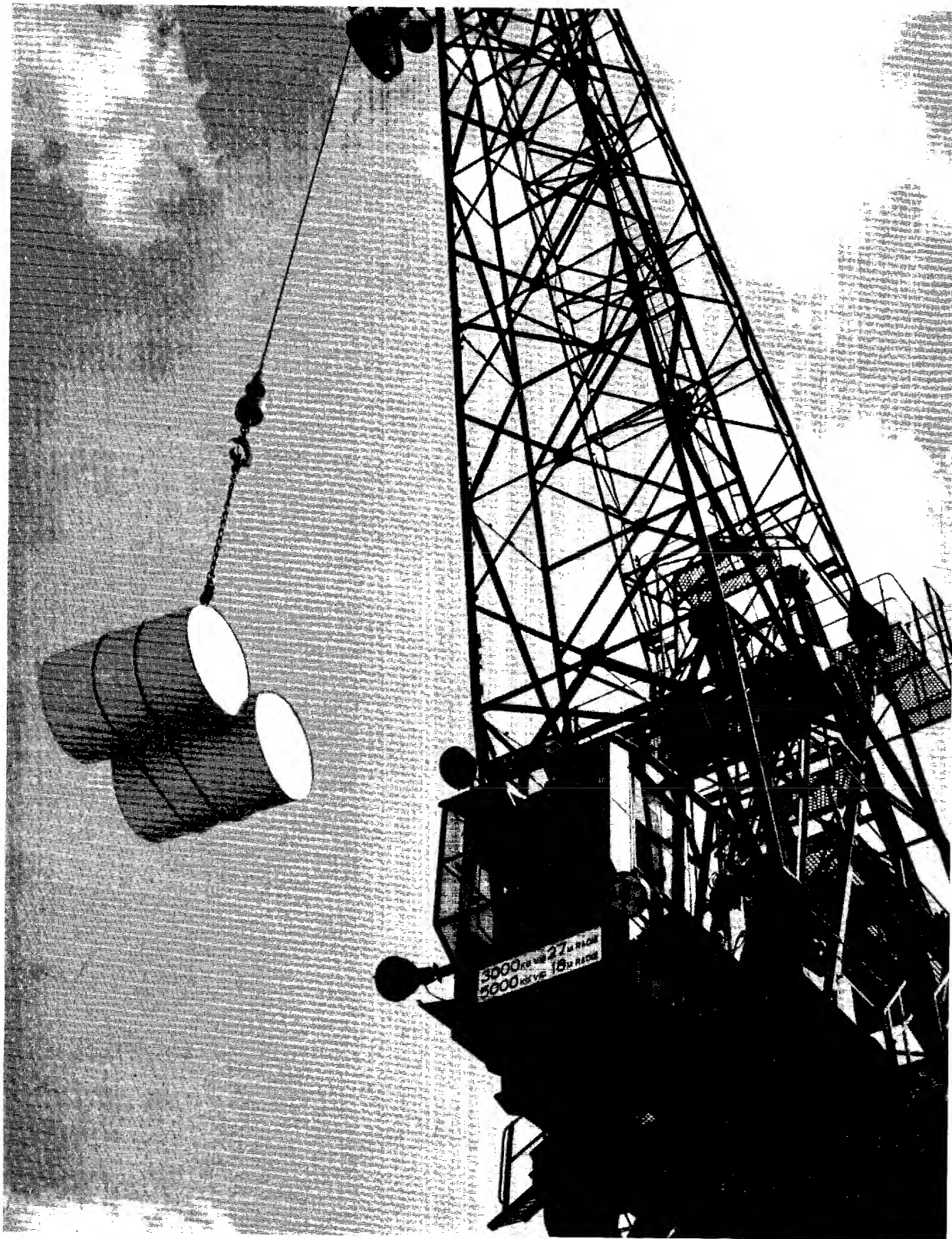


The "Tannara", a 10,000 tonner at Hallstadvik.



Loading of paper at Hallstadvik



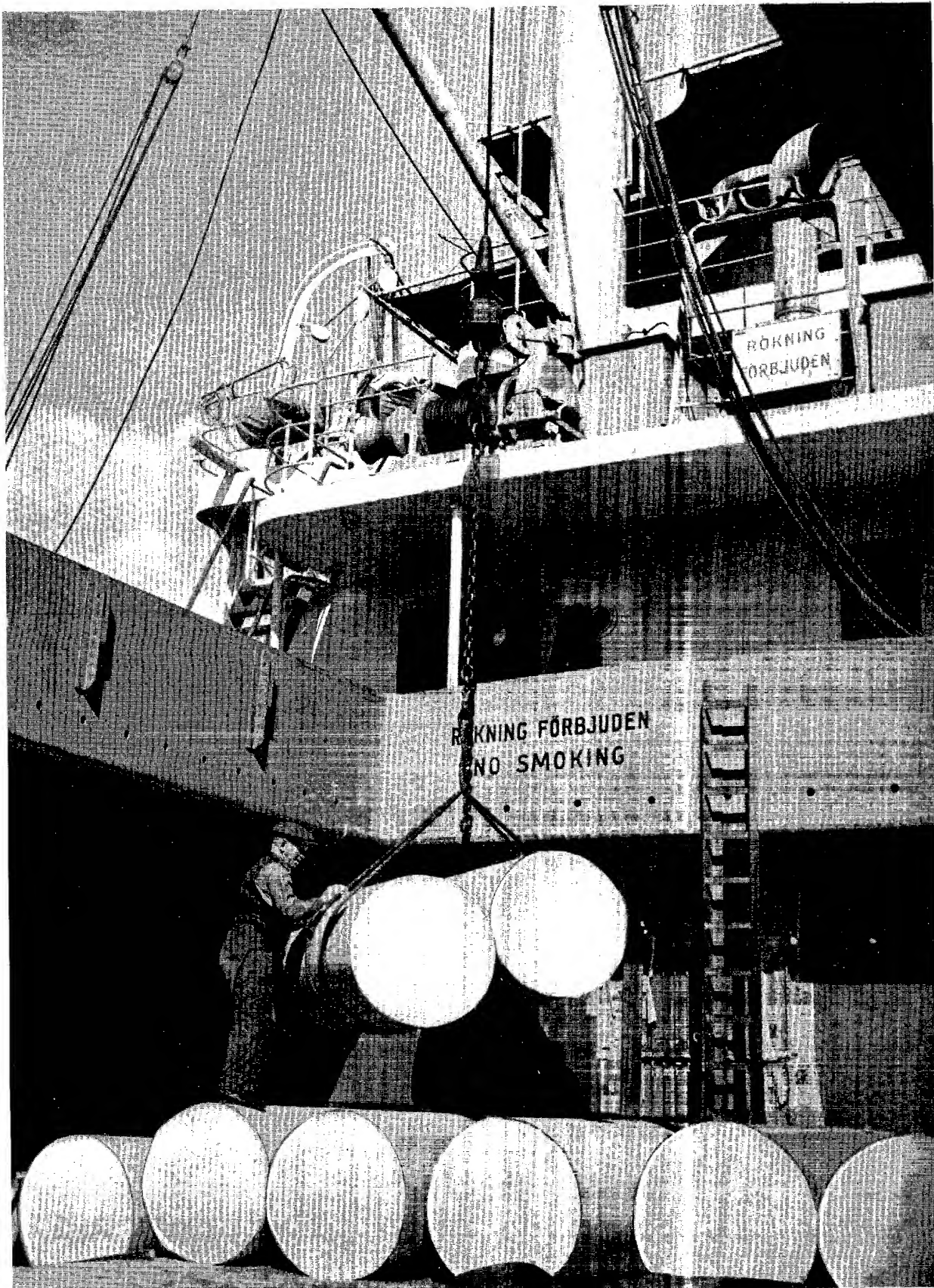


Powerful cranes lift the rolls aboard the steamer.



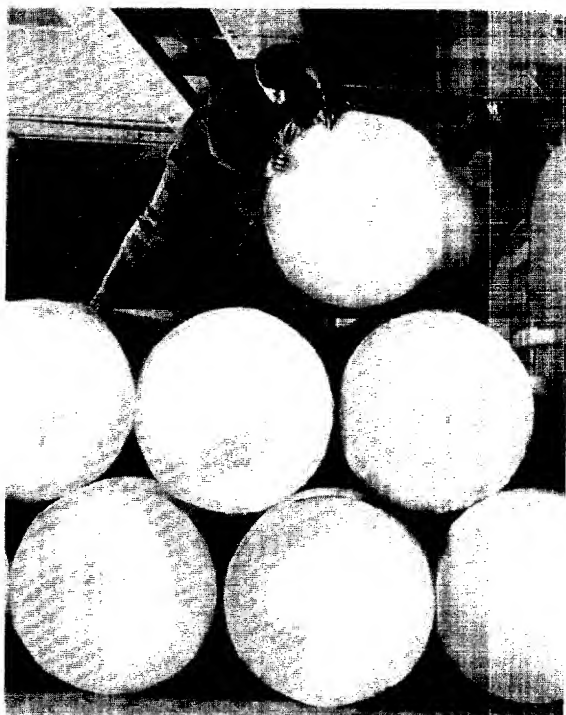
shipment, as the paper is normally shipped direct from the mill to the ports overseas without such trans-shipment. During the unavoidable handling of the paper in its journey from the paper machines to the steamer, the use of up-to-date methods and scrupulous care is bringing good results. The shipping companies are also interested in this question,

and give us valuable assistance. All this endeavour, coupled with the carefulness with which the wrapping of the paper is carried out, makes the risk of transit damage no greater than it would be for short transportation by rail. It is the fortunate location of our mills on tide water with open water the year round which makes this condition poss-



Sweden has a large modern Merchant Marine, specially suited for transportation of paper.





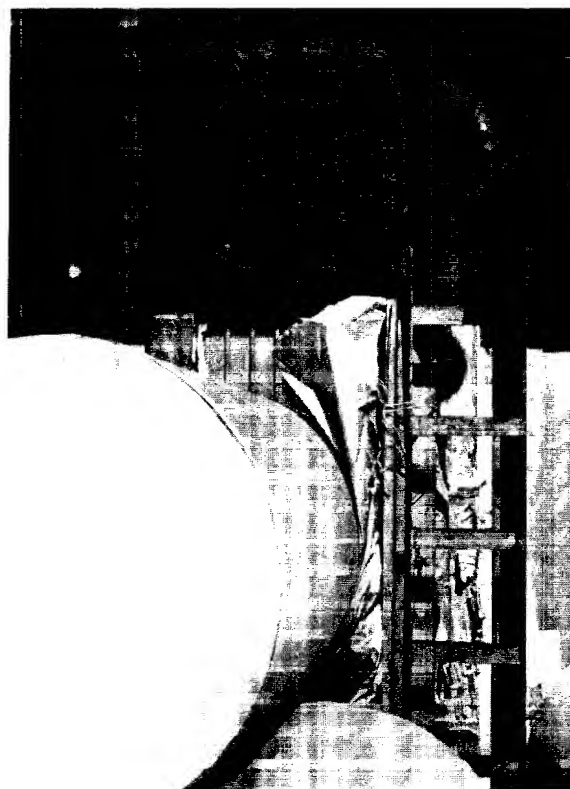
The stowing must be done with care.



The rolls are protected by straw cushions when necessary.

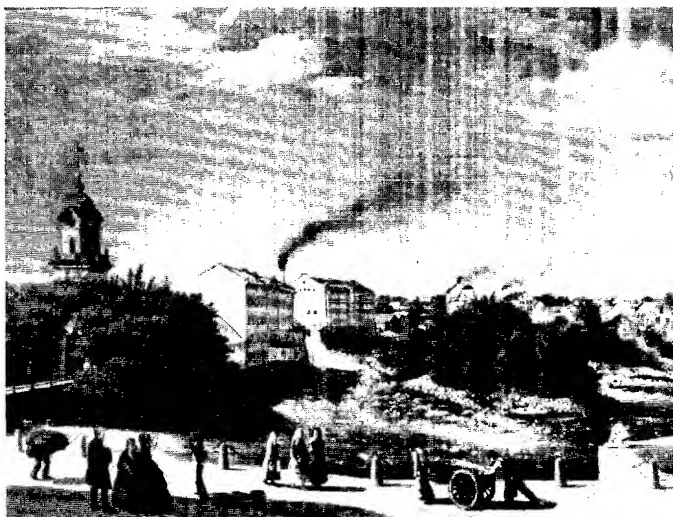
ible. No other newsprint mill of importance in Scandinavia enjoys such an advantage.

Holmen does not lose sight of its paper when it leaves the mill. In order to maintain as intimate a contact with its buyers as possible, and in order to be able to keep in touch with the varying local conditions, the Company has established its own sales organizations in different markets. These offices do the selling, keep track of deliveries, supervise the unloading and handling of the paper, and are at the service of our customers generally in all questions connected with the use of the paper. The Company's salesmen also try to get an idea of the behaviour of the paper in the customers' presses and the appearance of the printed product. They supply the mills at home with samples and information, enabling the mill management to follow the entire career of their product. This co-operation with our buyers requires experience and knowledge which the Company's salesmen possess. They are fully conversant with the methods of manufacture at home, and also with the technical developments in the printing industry and the demands made on the paper by newspapers.



Fadlers etc. are covered with boards to protect the paper.





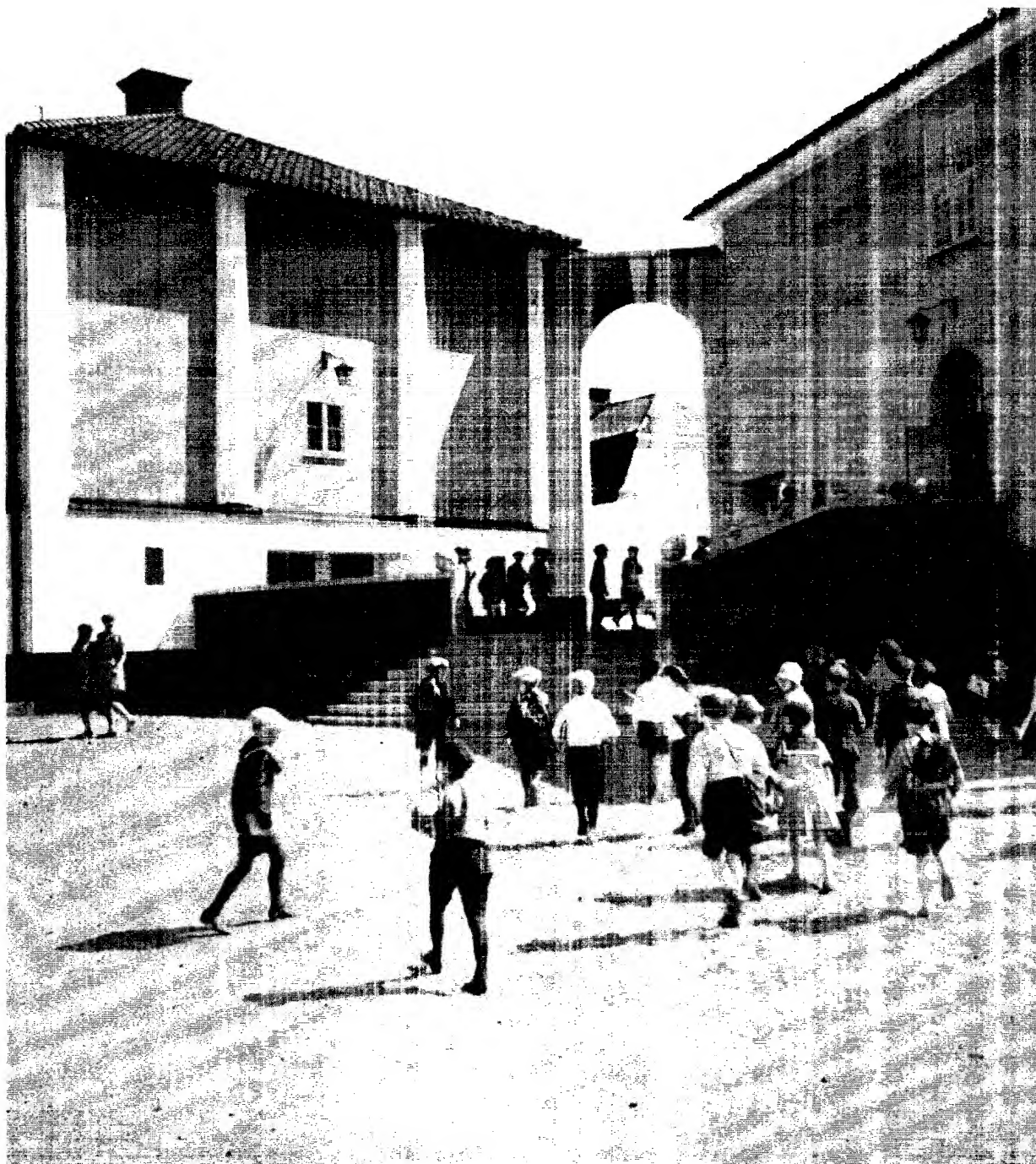
Holmens Mills in the 1850's.

Painting by G. Saloman.

## INDUSTRIAL COMMUNITIES

The feeling of the importance of industry and its vital interests is probably more natural for the authorities of an old industrial city such as Norrköping than for communities of a different type. The mutual understanding between the city authorities and Holmen is significant. The situation of the Norrköping mill in the middle of the city has also brought with it certain special problems outside of those connected with manufacture.

The management of the Company has always tried to preserve certain things on which the Company's activities naturally have an influence. The view of the city around the river, for instance, bears an eloquent testimony to this. It has been possible to preserve the century-old, architecturally perfect, yellow factory facades around the handsome tower which stands over the office building. Few cities can show an industry in such a pictur-

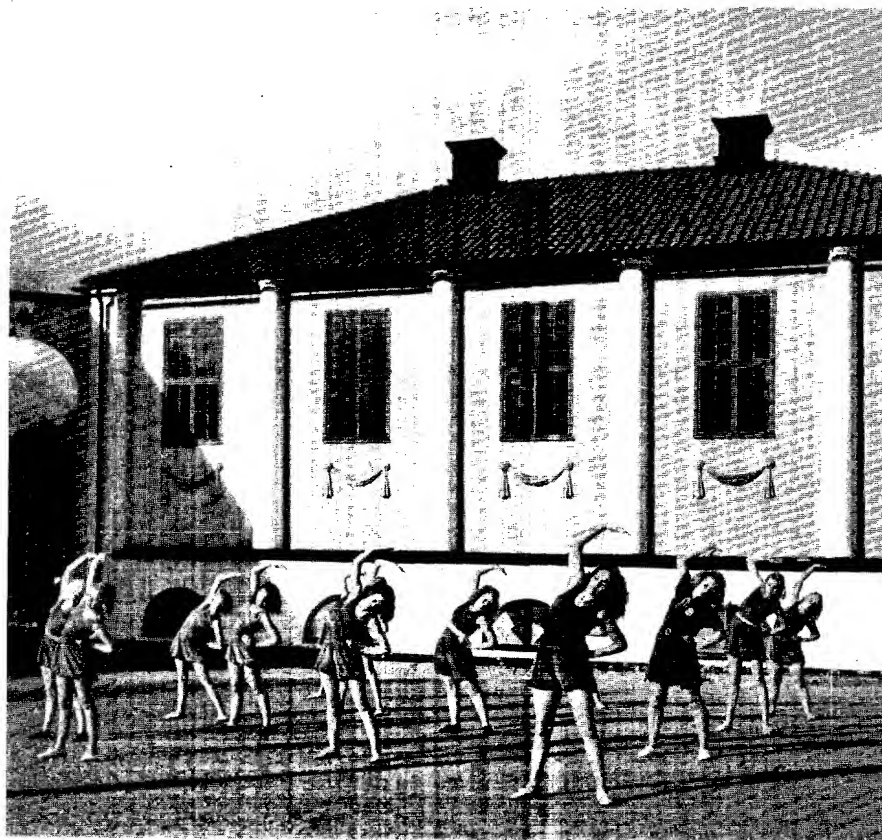


The modern school in the community surrounding the Hallsta Mill. To the left, the handsome gymnasium.

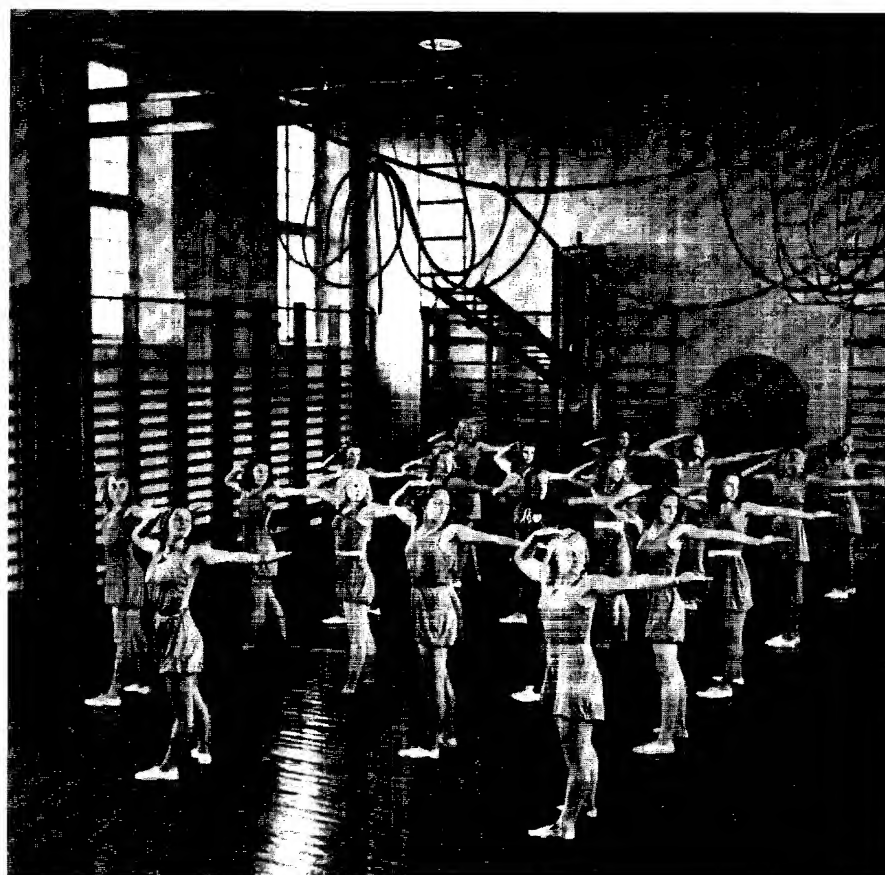
esque setting, with green trees and flowing water. In addition to furthering social activities in the community, the Company seeks to add to the happiness of the employees in many different ways, and to lend a helping hand in surmounting difficulties which may arise. In this connection can be mentioned the newly established children's home with trained personnel, where mothers, who in

great numbers work in the textile industry, can with confidence leave their children to be cared for during the day, or if necessary, for the entire week.

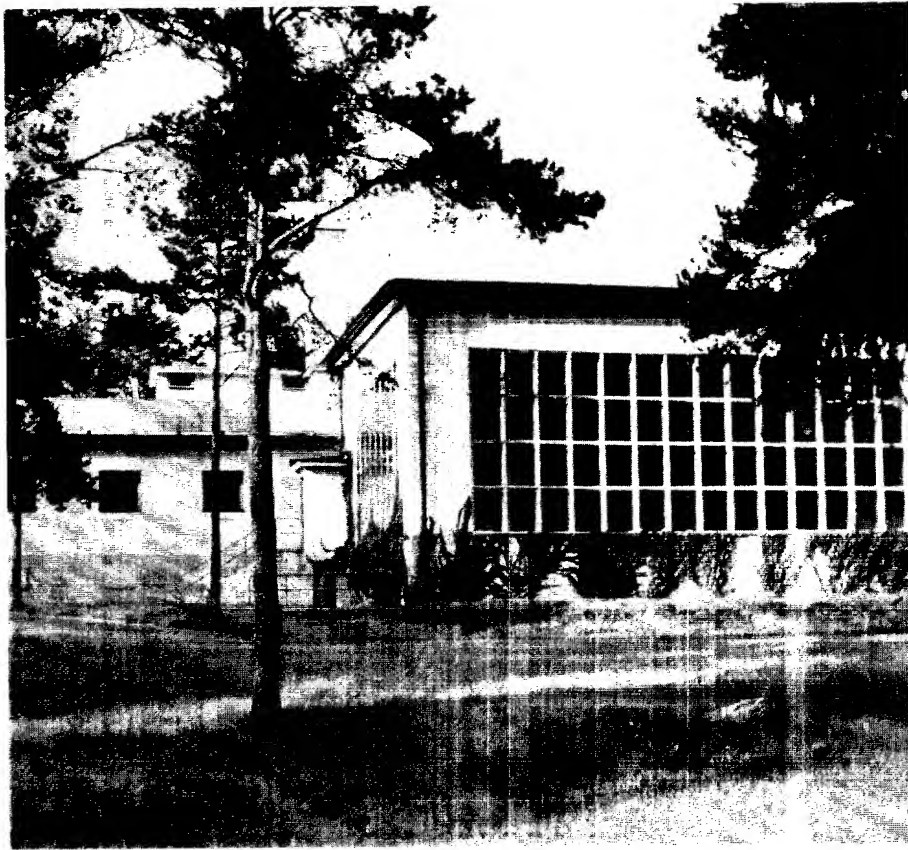
When the paper mills at Hallstavik were built the Company met with many new problems. Here it was necessary not only to build a factory, but also to create a community. At first the Company had to take care



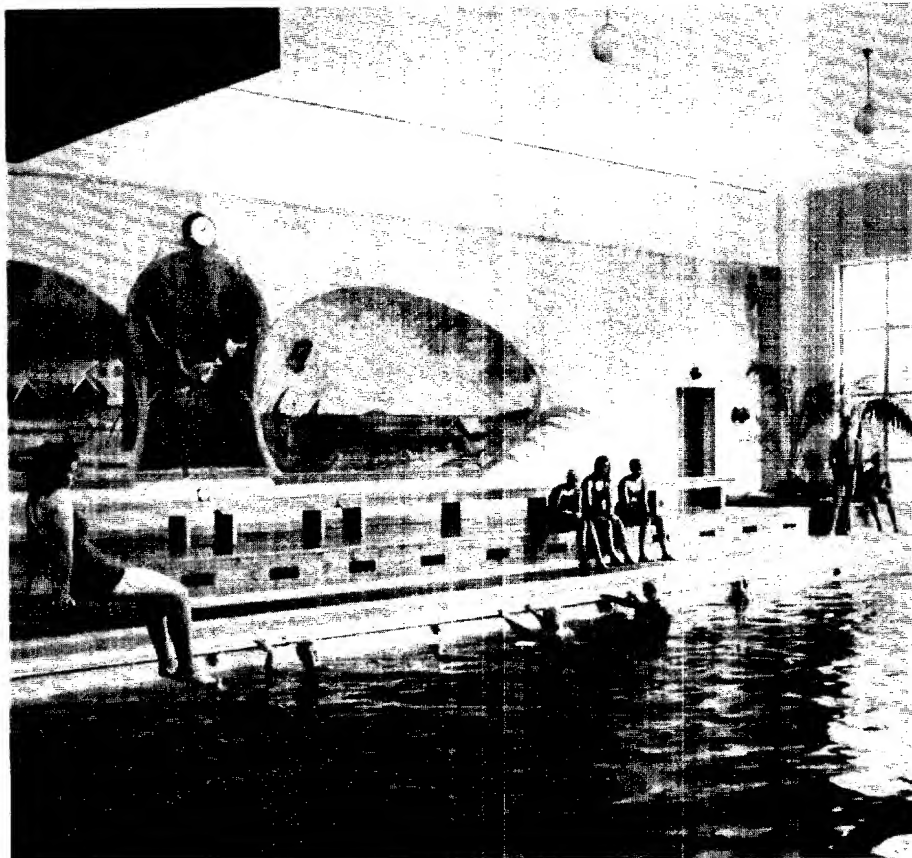
Modern physical culture  
outside —



— and inside the beautiful  
gymnasium.



The modern swimming bath,  
built on the initiative of the  
company.



is appreciated as a great  
asset to the community and  
a favorite resort for the  
athletic youth.





The children's home at Norrköping fulfils an important social function.

of the entire housing problem, but as time went on more and more of the workers built their own homes. The illustrations in this book give a picture of how this community now appears. Endeavours have been made to build the houses in a variety of styles, according to the personal taste of the inhabitant. The pretty gardens round the workers' own homes, as well as those around the houses owned by the Company, speak well for the happiness and contentment of the people living there. Almost every garden has its specialty: rock gardens, roses, vegetable gardens or beehives, and the Company seeks to stimulate an interest in gardening by annual contests.

The home was the nucleus around which, in the beginning, the Company could build its social structure. A natural supplement became the school. Hallstavik has nowadays not only a large modern elementary school but also a high school, which makes it possible for the children to carry on their education there up to the age of 16 or 17.

Church and rectory became just as organic as the school. Hallstavik now has a congregation which in numbers has exceeded the mother congregation of which it was originally a branch. As the population increased there were also other needs in the community. Thus a modern clinic has been established where inexpensive and partly free medical treatment is given. The community has its own physician, and its own clinic where dental care for children is not only obligatory, but free. A maternity hospital will be built before long.

Among the "social services" should also be counted the newly-built, modern, and beautiful bath, where at small expense Turkish and other kinds of baths may be enjoyed, and where the large swimming-pool has become a favourite playground for the younger generation.

The Company's part as founder of the community at Hallstavik has been completed long ago. The affairs of the community are now handled, according to the principles of



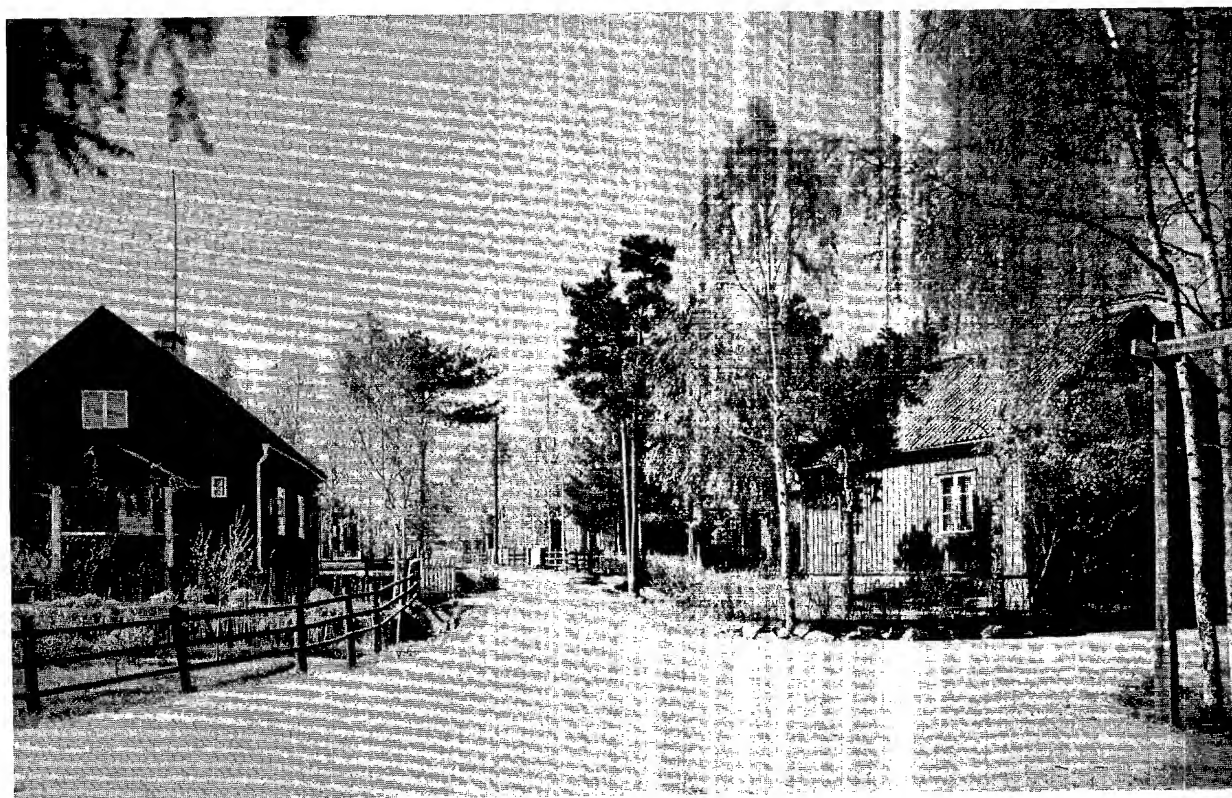
Time for fairy tales.



Everyone has to work.



Winter at Hallstadvik — the snow ploughed from the road between the workmen's houses - -



- and springtime in the gardens.

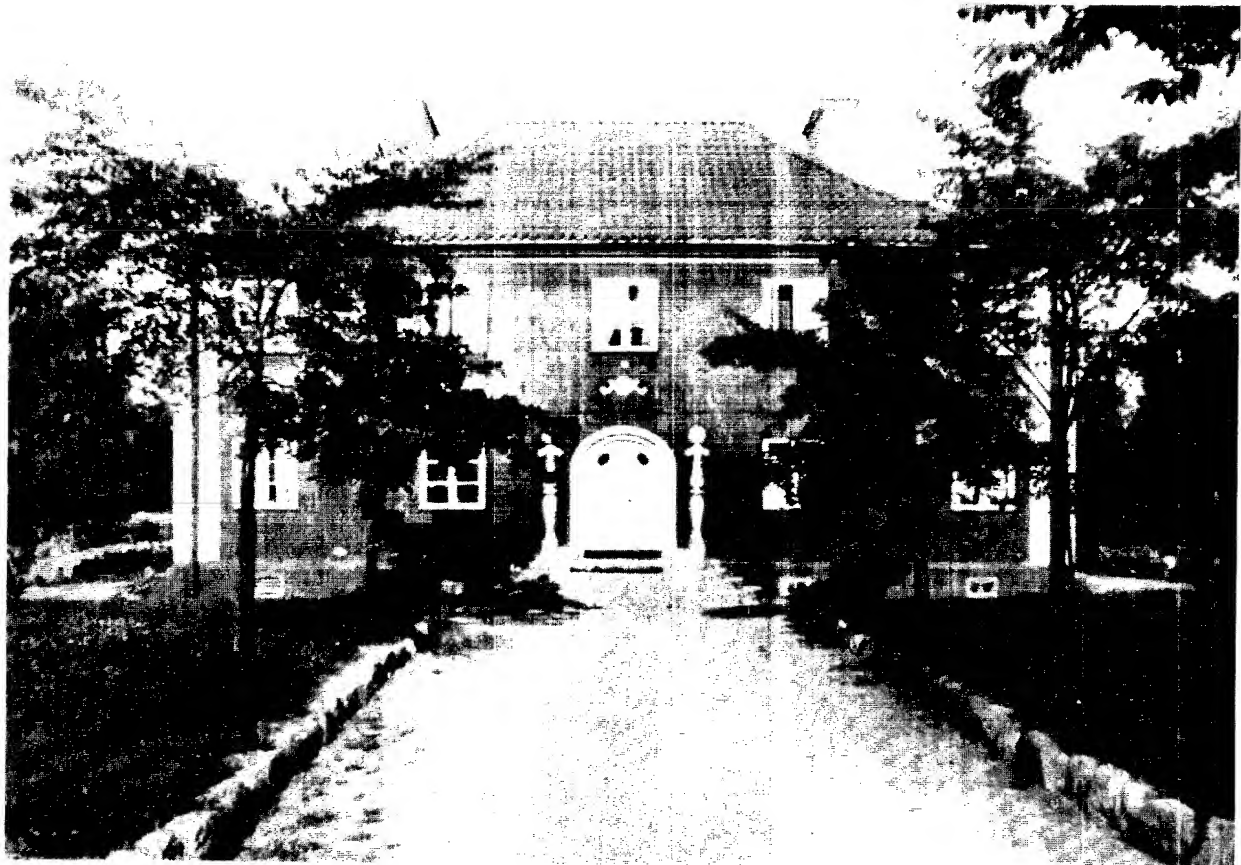


High standard is picture of the home of a worker at the paper mill.

democracy, by its own governing bodies, but the Company retains a lively interest in the sound development of the community for the benefit and happiness of its inhabitants.

When the Hallsta mills were built the Company already had some experience concerning the establishment of mill communities in the country. About 15 years earlier, the sulphite mill at Loddby, outside Norrköping, had been erected. The conditions here, of course, were different from Hallstavik. Loddby is one of the old manor houses round Norrköping. The distance to the city is scarcely more than 4 miles, but the housing question nevertheless had to be partly solved by the Company. Much of what has been said here about Hallstavik is also true of Loddby

though to a lesser degree. From the train-window one can see the factory surrounded by a small cluster of red houses, in the summertime tucked away in luxuriant greenery, and with century-old oaks outlined against the sky.



The so-called "Bachelor's hotel". One of the earlier buildings at Hallstavik.





## SPARE TIME

People in Sweden are fond of joining together in associations and clubs to enjoy many different hobbies and pursuits. The working hours pass quickly, and leave many hours of the day to be filled as one's own fancy may dictate — hours in which to satisfy the desire for knowledge which seems to have become an outstanding characteristic of the modern Swede. To-day it is not considered fitting for any one to waste his free time.

With the many employees of Holmens Company, time outside the factories or offices is utilized for a rich and active club life. There is in Sweden a "Workers' Education Association" and also an educational association for office employees, and many of the personnel of the Company have become enthusiastic members of these organizations. It is pleasing to note the lively interest in study circles and lecture courses. In recent years



Athletics constitute one of the greatest interests of the young people at the mill. The Company has met the youngsters halfway by the presentation of a large modern athletic field at Hallstavik.

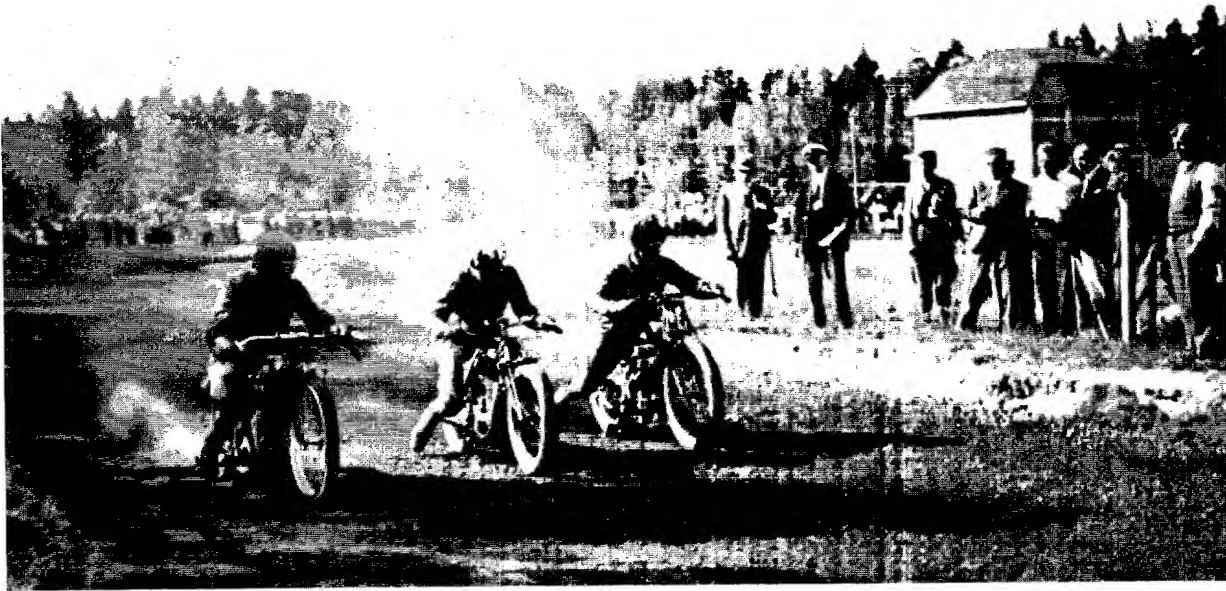


Track and field sports attract hundreds of active participants and many interested spectators during the summer season, but Soccer football is the favorite game. These pictures show some exciting moments on the field at Hallstavik.



The Hall's teams are prominent, both on skis and on skates





Before the war, motor-cycle racing was a speciality at Hallstavik. Now it can reappear!

more and more of the younger people have devoted a considerable part of their spare time to apprentice courses of different kinds, or to participation in the different trade schools which are offered by many of our communities.

The Company tries in every way to support and encourage these educational activities.

One problem is the question of meeting places. In Norrköping the Company has put at the disposal of the employees modest but attractive club-rooms for social functions and for study.

Many of Holmens people are also to be found in the great popular movements into which the Red Cross, the Boy Scouts, the



Many of the employees of the Company have their own boats for summer excursions.

Home Guard, and many other voluntary organizations have developed.

As in the majority of other places in Sweden, the interest in games and athletics of all kinds is very active at the Company's plants. Some athletic clubs were formed by the employees as far back as 20 years ago, and enjoy the constant support of the concern. Land has been given for athletic fields; annual support is paid for their maintenance, and gymnastic halls are at the disposal of the employees. At Hallstaviik the Company has built a shooting range which is reputed to be the best in that part of the country.

There is great activity in all these associations and clubs. But although they receive

financial support from the Company, they live their own lives. One cannot exaggerate their importance in humanising the relations of employers and employed. Through these clubs the workers of all categories have the best opportunities of meeting outside working hours, thus getting to know each other. It is therefore in the interest of both the community and the Company to have such social activities, adjusted to all ages and interests and to different leanings and aptitudes. But the initiative must come from the employees themselves, the work must be done by them. The Company has always found "Help to help yourself" the best motto in this connection.



In the Company's club rooms, courses are held on the most varied subjects. Here the use of the slide-rule is being mastered.